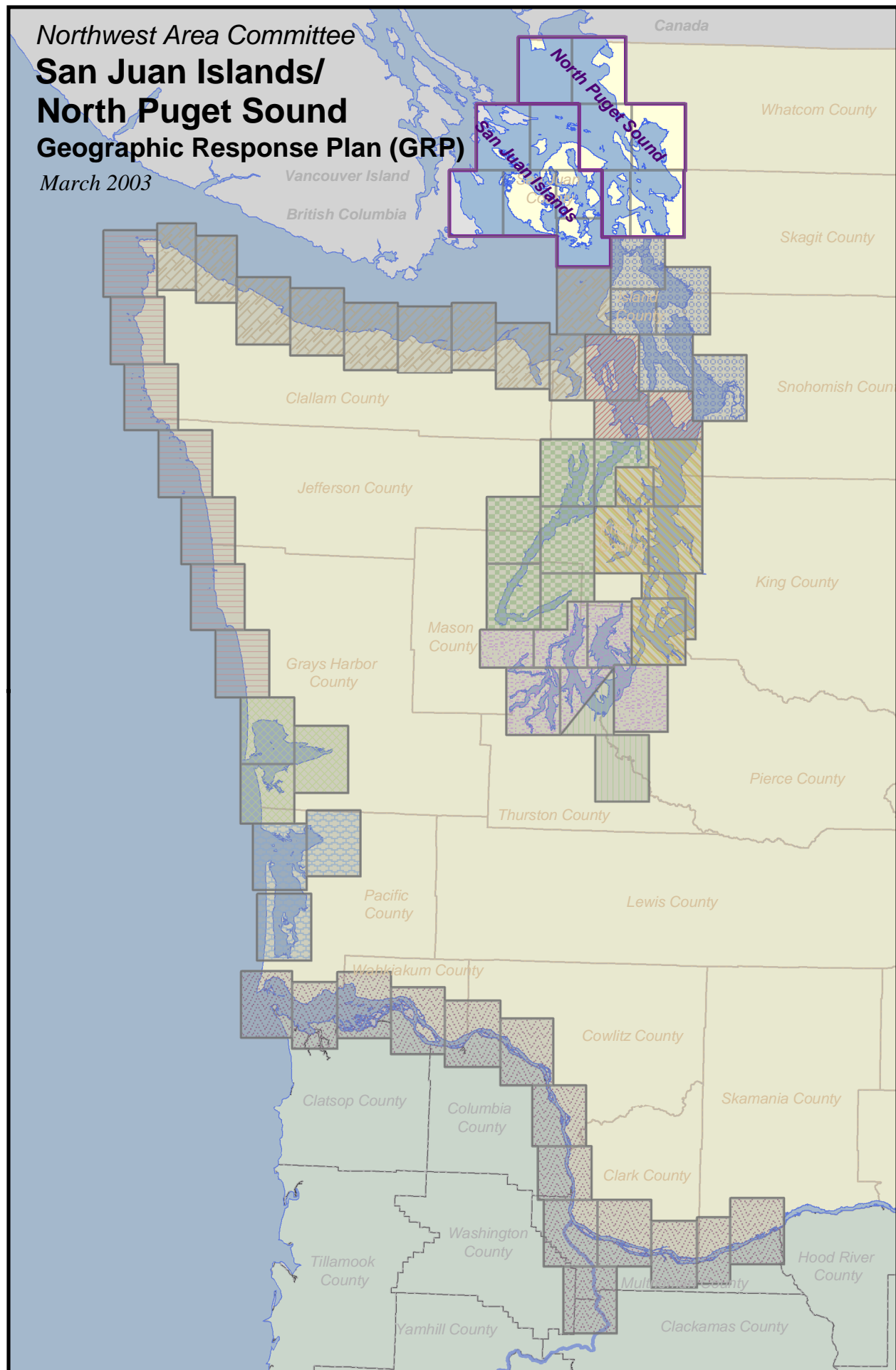


Northwest Area Committee
**San Juan Islands/
North Puget Sound**
Geographic Response Plan (GRP)

March 2003



SPILL RESPONSE CONTACT SHEET

Required Notifications For Hazardous Substance or Oil Spills

USCG National Response Center.....(800) 424-8802

In Oregon:

Department of Emergency Management(800) 452-0311

In Washington:

Emergency Management Division.....(800) 258-5990

Department of Ecology Northwest Regional Office.....(425) 649-7000

Department of Ecology Southwest Regional Office.....(360) 407-6300

U.S. Coast Guard

National Response Center (800) 424-8802

Marine Safety Office Puget Sound:

Watchstander (206) 217-6232

Safety Office (206) 217-6232

Marine Safety Office Portland:

Watchstander (503) 240-9301

Safety Office (503) 240-9379

Pacific Strike Team (415) 883-3311

District 13:

MEP/drat (206) 220-7210

Command Center (206) 220-7001

Public Affairs (206) 220-7237

Vessel Traffic Service (VTS) (206) 217-6050

Environmental Protection Agency (EPA)

Region 10 Spill Response (206) 553-1263

Washington Ops Office (360) 753-9083

Oregon Ops Office (503) 326-3250

Idaho Ops Office (208) 334-1450

RCRA/ CERCLA Hotline (800) 424-9346

Public Affairs (206) 553-1203

National Oceanic Atmosphere Administration

Scientific Support Coordination (206) 526-6829

Weather (206) 526-6087

Canadian

Marine Emergency Ops/Vessel Traffic (604) 666-6011

Environmental Protection (604) 666-6100

B.C. Environment (604) 356-7721

Department of Interior

Environmental Affairs (503) 231-6157

(503) 621-3682

U.S. Navy

Naval Shipyard (360) 476-3466

Naval Base Seattle (360) 315-5440

Supervisor of Salvage (202) 695-0231

Army Corps of Engineers

Hazards to Navigation (206) 764-3400

Lummi Nation

Tribal Office (360) 384-1489

After Hours Emergencies (360) 671-9222

Nooksack Tribe

Tribal Office (360) 592-5176

Tribal Police (360) 592-2632

Samish Indian Nation

Tribal Office (360) 293-6404

After Hours Emergencies (360) 424-1739

Swinomish Tribe

Tribal Office (360) 466-3163

After Hours Emergencies (360) 293-4684

Federal O.S.R.O./

State Approved Response Contractors

All Out Indust. & Env. Services (360) 414-8655

Certified Cleaning Services, Inc. (253) 536-5500

Clean Sound Cooperative, Inc. (425) 783-0908

Cowlitz Clean Sweep, Inc. (360) 423-6316

FOSS Environmental (800) 337-7455

Global Diving and Salvage (206) 623-0621

Guardian Industrial Services, Inc. (253) 536-0455

Island Oil Spill Association (360) 378-5322

Matrix Service, Inc. (360) 676-4905

MSRC (425) 252-1300

National Response Corporation (206) 340-2772

Washington State

Department of Ecology Headquarters (360) 407-6900

Southwest Region (360) 407-6300

Northwest Region (425) 649-7000

Central Region (509) 575-2490

Eastern Region (509) 456-2926

Department of Fish and Wildlife (360) 534-8233

Emergency Management Division (360) 438-8639

(800) 258-5990

State Patrol

Bellevue (425) 455-7700

Tacoma (253) 536-6210

Bremerton (360) 478-4646

Oregon State

Department of Environmental Quality (503) 229-5733

Emergency Management (503) 378-6377

(800) 452-0311

HOW TO USE THIS GEOGRAPHIC RESPONSE PLAN

Purpose of Geographic Response Plan (GRP)

This plan prioritizes resources to be protected and allows for immediate and proper action. By using this plan, the first responders to a spill can avoid the initial confusion that generally accompanies any spill.

Geographic Response Plans are used during the emergent phase of a spill which lasts from the time a spill occurs until the Unified Command is operating and/or the spill has been contained and cleaned up. Generally this lasts no more than 24 hours. The GRPs constitute the federal on-scene coordinators' and state on-scene coordinators' (Incident Commanders) "orders" during the emergent phase of the spill. During the project phase, the GRP will continue to be used, and the planned operation for the day will be found in the Incident Action Plan's Assignment List (ICS Form 204). The Assignment List is prepared in the Planning Section with input from natural resource trustees, the Incident Objectives (ICS Form 202), Operations Planning Worksheet (ICS Form 215), and Operations Section Chief.

Strategy Selection

Chapter 4 contains complete strategy descriptions in matrix form, response priorities, and strategy maps. The strategies depicted in Chapter 4 should be implemented as soon as possible, following the priority table in Section 2 with the "Potential Spill Origin" closest to the actual spill origin. These strategy deployment priorities may be modified by the Incident Commander(s) after reviewing on scene information, including: tides, currents, weather conditions, oil type, initial trajectories, etc.

It is assumed that control and containment at the source is the number one priority of any response. If, in the responder's best judgment, this type of response is infeasible then the priorities laid out in Chapter 4, Section 2 take precedence over containment and control.

It is important to note that strategies rely on the spill trajectory. A booming strategy listed as a high priority would not necessarily be implemented if the spill trajectory and booming location did not warrant action in that area. However, the priority tables should be followed until spill trajectory information becomes available, and modifications to the priority tables must be approved by the Incident Commander(s).

The strategies discussed in this GRP have been designed for use with persistent oils and may not be suitable for other petroleum or hazardous substance products. For hazardous substance spills, refer to the Northwest Area Contingency Plan, Chapter 7000.

Standardized Response Language

In order to avoid confusion in response terminology, this GRP uses standard National Interagency Incident Management System, Incident Command System (NIIMS, ICS) terminology and strategy names, which are defined in Appendix A, Table A-1 (e.g. diversion, containment, exclusion).

San Juan Islands / North Puget Sound
Geographic Response Plan

Record of Changes

Date	Change Number	Summary of Changes	Person Making Changes
July 1, 1993	Original Release North Puget Sound	N/A	N/A
July 1, 1993	Original Release San Juan Islands	N/A	N/A
Dec 6, 1994	Change 1	Replacement of document - merger of North Puget Sound and San Juan Island GRPs. Chapter 4 revisions based on field verification.	--
March 2003	Change 2	Update of Chapter 4 using GIS based maps, and new priority tables based on trajectory modeling	D. Davis
March 2009	Change 3	Chapter 4 for San Juan Islands and North Puget Sound updated.	J. Williams
August 2011	Change 4	Chapter 3 removed - information conflicted with updated information in Chapter 4. SJI Chapter 4 re-titled Chapter 4A - San Juan Islands "Response Strategies & Priorities." NPS Chapter 4 re-titled Chapter 4B - North Puget Sound "Response Strategies & Priorities." Correction to Priority Table NPS-J; reference to NPS-06 replaced by NPS-54. Blank insert pages added to missing pages in Chapter 6. Table of Contents and Record of Changes updated.	H. Chichester

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San Juan Islands/ North Puget Sound, WA

GEOGRAPHIC RESPONSE PLAN

1. INTRODUCTION: SCOPE OF THIS PROJECT

Geographic Response Plans are intended to help the first responders to a spill avoid the initial confusion that generally accompanies any spill. This document serves as the federal and state on-scene-coordinators “orders” during a spill in the area covered by this GRP (see Chapter 3 for area covered). As such, it has been approved by the U.S. Coast Guard Marine Safety Office and the Washington State Department of Ecology Spills Program. Changes to this document are expected as more testing is conducted through drills, site visits, and actual use in spill situations. To submit comments, corrections, or suggestions please refer to Appendix C.

GRPs have been developed for the marine and inland waters of Washington, Oregon, and Idaho. They are prepared through the efforts and cooperation of the Washington Department of Ecology, Washington Department of Fish and Wildlife, Oregon Department of Environmental Quality, Idaho State Emergency Response Commission, the U.S. Coast Guard, the Environmental Protection Agency, tribes, other state and federal agencies, response organizations, and local emergency responders.

GRPs were developed through workshops involving federal, state, and local oil spill emergency response experts, response contractors, and representatives from tribes, industry, ports, environmental organizations, and pilots. Workshop participants identified resources which require protection, developed operational strategies, and pinpointed logistical support. A similar process has been used for major updates.

Following the workshops, the data gathered was processed and reproduced in the form of maps and matrices which appear in Chapters 4 through 6. The maps in Chapters 5 and 6 were generated using Canvas. Maps for Chapter 4 were generated using ArcView GIS. The matrices were created using MS Excel, and the balance of each GRP was produced using MS Word.

The first goal of a GRP was to identify, with the assistance of the Washington State Natural Resource Damage Assessment Team, resources needing protection; response resources (boom, boat ramps, vessels, etc.) needed, site access and staging, tribal and local response community contacts, and local conditions (e.g. physical features, hydrology, currents and tides, winds and climate) that may affect response strategies. Note that GRPs only address protection of sensitive **public** resources. It is the responsibility of private resource owners and/or potentially liable parties to address protection of private resources (such as commercial marinas, private water intakes, and non-release aquaculture facilities).

Secondly, response strategies were developed based on the sensitive resources noted, hydrology, and climatic considerations. Individual response strategies identify the amount of boom necessary for implementation. The response strategies are then applied to Potential Spill Origins and trajectory modeling, and prioritized, taking into account factors such as resource sensitivity, feasibility, wind, and tidal conditions.

Draft strategy maps and matrices were sent out for review and consideration of strategy viability. Field verification was conducted for some strategies, and changes proposed by the participants were included in a semi-final draft, which was offered for final review to all interested parties and the participants of the field verification.

Finally, the general text of the GRP was compiled along with the site description, reference maps, and logistical support.

Items included in Logistical Support:

- Location of operations center for the central response organization;
- Local equipment and trained personnel;
- Local facilities and services and appropriate contacts for each;
- Site access & contacts;
- Staging areas;
- Helicopter and air support;
- Local experts;
- Volunteer organizations;
- Potential wildlife rehabilitation centers;
- Marinas, docks, piers, and boat ramps;
- Potential interim storage locations, permitting process;
- Damaged vessel safehavens;
- Vessel repairs & cleaning;
- Response times for bringing equipment in from other areas.

2. SITE DESCRIPTION

The San Juan Islands/ North Puget Sound is bounded by Point Roberts to the north; the southern tip of Lopez Island and Fidalgo Island to the south; Haro Strait to the west; and the mainland of northern Washington to the east (including Boundary Bay, Semiahmoo Bay, Drayton Harbor, Birch Bay, Lummi Bay, Bellingham Bay, Padilla Bay, Burrows Bay)

The marine and estuarine waters within the San Juan Islands and North Puget Sound are among the most biologically rich and sensitive areas of the State. A wide diversity of shoreline and marine habitats (estuaries, rocks, reefs, and islands), abundant food resources, and exceptional water quality all contribute to making this area especially valuable to wildlife.

This region contains numerous small to medium-sized seabird nesting colonies, a multitude of marine mammal breeding and resting sites, rearing and feeding habitat for marine fish, and one of the most impressive arrays of marine invertebrates in the world. The region is also a temporary home to many species of marine birds and mammals that are seasonal residents or pass through the area during migration.

The importance of wildlife within this region, particularly the San Juan Islands, cannot be overstated. Marine invertebrates and fishes provide an ample food base for the diverse and abundant populations of marine mammals and birds. Direct benefits result from the harvest of economically important fish, shellfish, and bird species supported by this food chain. Non-consumptive use of wildlife has also become increasingly important to our society. Recreational experiences are enhanced by sightings of wildlife. The visible presence of wildlife in an area also provides a sense of well-being to many people, since a habitat rich in wildlife is one that is healthy and productive. This area, because it has been relatively unaffected by human activities, is an ideal living laboratory in which to learn more about the functioning of marine environments.

Refer to Chapter 6 for detailed resource information.

2.1. Physical Features

The San Juan shoreline bordering the exposed areas of Rosario Strait and Haro Strait is comprised mostly of rocky headlands. Contrarily, the beaches open to the inside of the islands are generally sheltered rocky flats. Land in the San Juans is almost all natural, conservancy or rural. State parks and wildlife refuges are located on most of the islands. The San Juan Islands include the following shoreline habitats:¹

- Exposed rocky headlands
- Sheltered rocky flats
- Pocket beaches along exposed rocky shores
- Sand and gravel beaches
- Exposed tidal flats
- Sheltered tidal flats
- Marshes

There is a large vessel traffic separation zone within Rosario Strait. Many tankers transit this area on their voyage to Ferndale. Many ferries also have routes through the island passages, connecting most of the San Juan Islands to each other and the mainland. The Lummi Indian Reservation is located on Lummi Island.

¹ National Oceanic and Atmospheric Administration, Environmental Sensitivity Index, Strait of Juan de Fuca & Northern Puget Sound (Seattle: 1984).

The bays that comprise North Puget Sound are generally characterized by tidal flats, marshes, and some sections of exposed rocky headland. The outer islands are mostly exposed rocky headlands, sand and gravel beaches, and areas of exposed tidal flats. North Puget Sound shoreline includes the following shoreline habitats:²

- Exposed rocky headlands
- Pocket beaches along exposed rocky shores
- Wave-cut platforms
- Sand beaches
- Sand and cobble beaches
- Sand and gravel beaches
- Exposed tidal flats
- Sheltered tidal flats
- Marshes

Of note is the National Estuary and Reserve in Padilla Bay. An environmentally sensitive area, the bay is home to many different kinds of birds, invertebrates, and sea mammals. Padilla Bay is near the March Point refineries, and therefore of particular concern.

Bellingham Bay has man-made features along its shores, but also has areas of tidal flats, marshes and nesting grounds for seabirds. Samish Bay is also ecologically rich and has several areas of oyster and clam mariculture.

2.2. Hydrology

Puget Sound is generally a two layer system where the less saline surface water, with freshwater inputs from land, have a net seaward flow, and denser bottom water flows landward. Bottom water currents move southward toward Puget Sound through Rosario Strait. However, bottom water currents move northward through Haro Strait. Surface waters move southward through both straits.³ The net surface current within the Georgia Strait is towards land, however, it does flow seaward out of Bellingham Bay.⁴

Vertical mixing occurs in many of the shallow straits and bays of this region, therefore it is possible for pollutants to return or stay in the confined estuaries. The entire region is greatly affected by tidal currents.

2.3. Currents and Tides

The mean tidal range (MHW-MLW) for the area from Bellingham Bay to Padilla Bay is 4.2 feet to 5.9 feet. The diurnal range (MHHW-MLLW) is 7.3 feet to 8.6 feet.⁵ Tides vary throughout the San Juan Islands due to the intricate system of passages and inlets between the islands. However, generally, the mean tidal range (MHW - MLW) is 4.2 to 7.3 feet. The diurnal tidal range (MHHW - MLLW) is 5.2 to 8.6 feet.⁶

The tidal currents within North Puget Sound bays are weak and variable, however, within Rosario Strait average flood tide is 1.1 knots from the Northwest and ebb tide is 1.9 knots from the Southeast.⁷ Currents tend to increase in the narrow channels including Guemes and Bellingham Channels. Lopez, Thatcher, and Obstruction Passes

² National Oceanic and Atmospheric Administration, Environmental Sensitivity Index, Strait of Juan De Fuca & Northern Puget Sound (Seattle: 1984).

³ Evans Hamilton, Inc. and D.R. Systems, Inc., Puget Sound Environmental Atlas, vol. 1 (1987) 122-125.

⁴ Evans-Hamilton, Inc. and D.R. Systems, Inc., Puget Sound Environmental Atlas, vol. 1 (1987) 122-123.

⁵ National Oceanic and Atmospheric Administration, Tide Tables West coast of North and South America (1994).

⁶ National Oceanic and Atmospheric Association, Tide Tables West Coast of North and South America. (1994).

⁷ National Oceanic and Atmospheric Administration, Tidal Current Tables Pacific Coast of North America and Asia (1994).

within Rosario Strait are reported to have currents obtaining velocities of 3 to 7 knots.⁸ There is a continuous flow from Portage Bay into Hale Passage, regardless of tides or winds.

It is difficult to generalize the currents in and around the San Juan Islands. As a broad rule, the currents are stronger in the straits and passes along the outer edge of the islands than on the inner passes. Flood currents throughout the San Juan area tend to be weaker than the ebb currents. Between maximum flood and maximum ebb, the currents will form eddies in some areas. Two larger eddy areas are off the southern ends of Lopez and San Juan Island.⁹

Tides and currents vary with seasonal runoff and lunar cycles in localized areas. Spill responders should consult tide and current tables for their particular location.

2.4. Winds

Because Puget Sound is bordered by mountains to the south and east, the strong westerly flow north of the Olympic Mountains is split to the north and south when it reaches the east side of the Sound. Winds in North Puget Sound are generally south, 10 to 20 mph April through May and October through March. During the summer months, they decrease to 0 to 9 mph on average.¹⁰ Local wind conditions may vary.

In North Puget Sound, Squamish Winds, gales of up to 50 miles per hour, may occur in localized areas on clear winter days. Storms are common during the fall through spring with winds from a generally southern direction.¹¹

2.5. Climate

The area has a maritime climate with cool summers and mild winters. The annual precipitation is between 18 and 50 inches. From September through early February, Georgia Strait is affected by land fogs that form on cool nights with clear skies. During long cold periods, these may persist for several days.¹²

⁸ Island Canoe, Inc, San Juan Current Guide, Third ed. (Bainbridge Island, Washington).

⁹ National Oceanic and Atmospheric Association, Tidal Current Tables Pacific Coast of North America and Asia (1994) and Canadian Hydrographic Service, Current Atlas for Juan de Fuca Strait to Strait of Georgia (1983).

¹⁰ Lilly, Kenneth E., Jr. Marine Weather of Western Washington (1983).

¹¹ National Oceanic and Atmospheric Administration, U.S. Coast Pilot (1993) 307.

¹² Ibid.

San Juan Islands / North Puget Sound Geographic Response Plan

Chapter 3 – (Reserved)

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NORTHWEST AREA COMMITTEE

SAN JUAN ISLANDS (SJI)

Response Strategies & Priorities

CHAPTER 4a

March 12, 2009

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4.0 GENERAL PROTECTION/COLLECTION STRATEGIES

4.1 Chapter Overview

Geographic Response Plans (GRPs) are:

- Triggered in the first hours (usually 6-24) following an oil spill.
- Targeted at shielding sensitive resources that lie close to the reported spill source.
- Just one method to minimize spill impacts, they can occur concurrently with other efforts, including skimming.

On-site Considerations

Before deploying a GRP strategy, responders should ask:

- Are conditions safe?
- Has initial control and containment been sufficiently achieved?
- Underflow dams and culvert blocks require Emergency Hydraulic Project Approval (HPA) prior to implementation. These response tactics will reduce, interrupt, or divert the water flow of streams that can be damaging to sensitive fish life and habitat. Responders must receive Emergency HPA from the Washington State Department of Fish and Wildlife **before** using culvert blocks and underflow dams. The Hydraulic Code (RCW 75-20.11-160) provides for immediate verbal approval in emergency situations. For emergency HPA contact 360-534-8233 (24 hour pager).

During the initial GRP-response phase, responders should be aware that:

- Challenging field conditions may require them to modify strategies, and later notify the command center.
- Certain strategies may call for access points or staging areas that are not easily reached at all times of the year or in all conditions.
- All strategies were designed for use with persistent, heavy oils and may not be suitable for other petroleum products or hazardous materials.
- Boom deployment may require around-the-clock tending and/or precise anchoring techniques. As a rule of thumb, use 4 anchors per 1000 ft.

- The sequence of deployments is pre-determined in a booming priority table. The appropriate table is found by finding which “Potential Spill Origin” point (orange boxes on the maps) lies closest to the actual (or reported) spill site.

After considerably more is known about the spill and surrounding area:

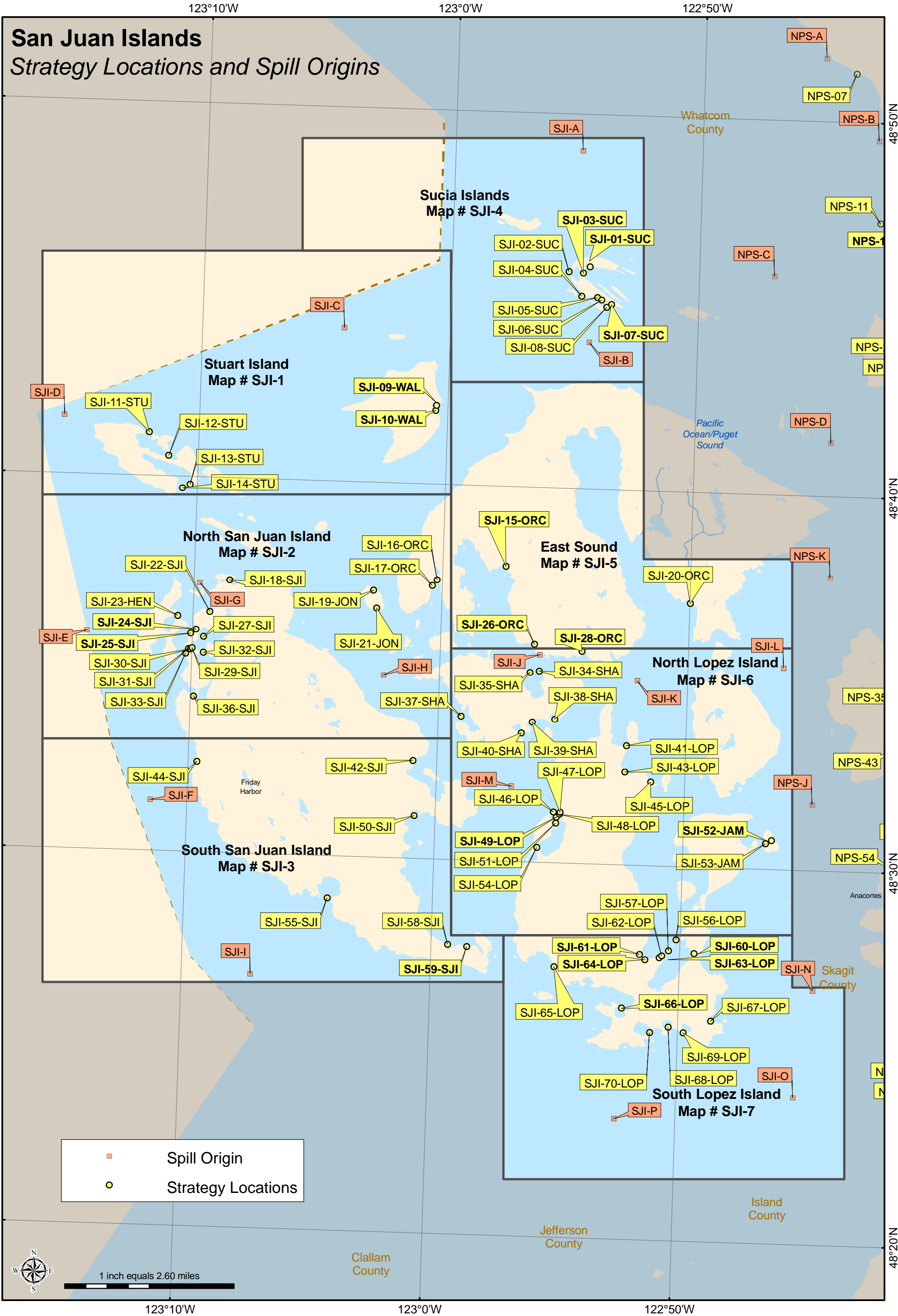
- Other techniques for recovery or containment (skimming, in situ burning, or dispersants) may be applied.
- GRP strategies are likely to be refined as a result of lessons learned.

Marine booming strategy sites are numbered from North to South.

The average in the strategy label indicates strategy is for average conditions.

4.2 Strategy and Access Locations Overview

Marine booming strategy sites are numbered from North to South





4.3 Strategy Priorities

The sequence of deployments is pre-determined in a booming priority table. The appropriate table is found by finding which 'Potential Spill Origin' point (orange boxes on the maps) lies closest to the actual (or reported) spill site.

Table 4-1: SJI-A, N of Sucia Island, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	SJI-08-SUC	4- 21	4- 35	4- 116
2	SJI-02-SUC	4- 17	4- 29	4- 104
3	SJI-04-SUC	4- 21	4- 31	4- 108
4	SJI-01-SUC	4- 21	4- 28	4- 102
5	SJI-03-SUC	4- 21	4- 30	4- 106
6	SJI-07-SUC	4- 21	4- 34	4- 114
7	SJI-09-WAL	4- 17	4- 36	4- 118
8	SJI-10-WAL	4- 17	4- 37	4- 120

Table 4-2: SJI-B, S of Sucia Island, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	SJI-08-SUC	4- 21	4- 35	4- 116
2	SJI-02-SUC	4- 17	4- 29	4- 104
3	SJI-04-SUC	4- 21	4- 31	4- 108
4	SJI-01-SUC	4- 21	4- 28	4- 102
5	SJI-03-SUC	4- 21	4- 30	4- 106
6	SJI-07-SUC	4- 21	4- 34	4- 114
7	SJI-09-WAL	4- 17	4- 36	4- 118
8	SJI-10-WAL	4- 17	4- 37	4- 120
9	SJI-19-JON	4- 18	4- 46	4- 138
10	SJI-21-JON	4- 18	4- 48	4- 142

Table 4-3: SJI-C, N of Waldron Island, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	SJI-11-STU	4- 17	4- 38	4- 122
2	SJI-12-STU	4- 17	4- 39	4- 124
3	SJI-13-STU	4- 17	4- 40	4- 126
4	SJI-14-STU	4- 17	4- 41	4- 128
5	SJI-09-WAL	4- 17	4- 36	4- 118
6	SJI-10-WAL	4- 17	4- 37	4- 120
7	SJI-02-SUC	4- 17	4- 29	4- 104
8	SJI-04-SUC	4- 21	4- 31	4- 108
9	SJI-08-SUC	4- 21	4- 35	4- 116

Table 4-4: SJI-D, NW end of Stuart Island, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	SJI-32-SJI	4- 18	4- 58	4- 164
2	SJI-27-SJI	4- 18	4- 53	4- 154
3	SJI-23-HEN	4- 18	4- 49	4- 146
4	SJI-13-STU	4- 17	4- 40	4- 126
5	SJI-14-STU	4- 17	4- 41	4- 128
6	SJI-55-SJI	4- 20	4- 81	4- 210
7	SJI-36-SJI	4- 18	4- 62	4- 172

Table 4-5: SJI-E, W of Henry Island, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	SJI-32-SJI	4- 18	4- 58	4- 164
2	SJI-27-SJI	4- 18	4- 53	4- 154
3	SJI-23-HEN	4- 18	4- 49	4- 146
4	SJI-13-STU	4- 17	4- 40	4- 126
5	SJI-14-STU	4- 17	4- 41	4- 128
6	SJI-55-SJI	4- 20	4- 81	4- 210
7	SJI-38-SHA	4- 24	4- 64	4- 176

Table 4-6: SJI-F, NW of Deadman Bay, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	SJI-32-SJI	4- 18	4- 58	4- 164
2	SJI-27-SJI	4- 18	4- 53	4- 154
3	SJI-55-SJI	4- 20	4- 81	4- 210
4	SJI-23-HEN	4- 18	4- 49	4- 146
5	SJI-13-STU	4- 17	4- 40	4- 126
6	SJI-14-STU	4- 17	4- 41	4- 128
7	SJI-38-SHA	4- 24	4- 64	4- 176

Table 4-7: SJI-G, N of Roche Harbor, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	SJI-32-SJI	4- 18	4- 58	4- 164
2	SJI-27-SJI	4- 18	4- 53	4- 154
3	SJI-23-HEN	4- 18	4- 49	4- 146
4	SJI-13-STU	4- 17	4- 40	4- 126
5	SJI-14-STU	4- 17	4- 41	4- 128
6	SJI-18-SJI	4- 18	4- 45	4- 136
7	SJI-24-SJI	4- 18	4- 50	4- 148
8	SJI-25-SJI	4- 18	4- 51	4- 150

Table 4-8: SJI-H, W of Wasp Islands, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	SJI-37-SHA	4- 24	4- 63	4- 174
2	SJI-46-LOP	4- 24	4- 72	4- 192
3	SJI-47-LOP	4- 24	4- 72	4- 194
4	SJI-48-LOP	4- 24	4- 72	4- 196
5	SJI-16-ORC	4- 18	4- 43	4- 132
6	SJI-17-ORC	4- 18	4- 44	4- 134
7	SJI-21-JON	4- 18	4- 48	4- 142
8	SJI-19-JON	4- 18	4- 46	4- 138

Table 4-9: SJI-I, Middle Bank, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	SJI-55-SJI	4- 20	4- 81	4- 210

Table 4-10: SJI-J, Orcas Island Ferry terminal, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	SJI-34-SHA	4- 24	4- 60	4- 168
2	SJI-35-SHA	4- 24	4- 61	4- 170
3	SJI-38-SHA	4- 24	4- 64	4- 176
4	SJI-39-SHA	4- 24	4- 65	4- 178
5	SJI-40-SHA	4- 24	4- 66	4- 180
6	SJI-28-ORC	4- 24	4- 54	4- 156
7	SJI-26-ORC	4- 23	4- 52	4- 152
8	SJI-47-LOP	4- 24	4- 72	4- 194

Table 4-11: SJI-K, Off Upright Head (N end Lopez Is), Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	SJI-26-ORC	4- 23	4- 52	4- 152
2	SJI-40-SHA	4- 24	4- 66	4- 180
3	SJI-39-SHA	4- 24	4- 65	4- 178
4	SJI-38-SHA	4- 24	4- 64	4- 176
5	SJI-47-LOP	4- 24	4- 72	4- 194
6	SJI-37-SHA	4- 24	4- 63	4- 174
7	SJI-45-LOP	4- 24	4- 71	4- 190

Table 4-12: SJI-L, E of Obstruction Island, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	SJI-52-JAM	4- 24	4- 78	4- 204
2	SJI-53-JAM	4- 24	4- 79	4- 206
3	SJI-67-LOP	4- 25	4- 93	4- 234
4	SJI-20-ORC	4- 23	4- 47	4- 140
5	SJI-56-LOP	4- 25	4- 82	4- 212
6	SJI-57-LOP	4- 25	4- 83	4- 214
7	SJI-62-LOP	4- 25	4- 86	4- 224
8	SJI-54-LOP	4- 24	4- 80	4- 208

Table 4-13: SJI-M, S end of Shaw Island, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	SJI-46-LOP	4- 24	4- 72	4- 192
2	SJI-47-LOP	4- 24	4- 72	4- 194
3	SJI-48-LOP	4- 24	4- 72	4- 196
4	SJI-49-LOP	4- 24	4- 73	4- 198
5	SJI-51-LOP	4- 24	4- 72	4- 202
6	SJI-40-SHA	4- 24	4- 66	4- 180
7	SJI-36-SJI	4- 18	4- 62	4- 172
7	SJI-39-SHA	4- 24	4- 65	4- 178
8	SJI-37-SHA	4- 24	4- 63	4- 174
8	SJI-50-SJI	4- 20	4- 76	4- 200
9	SJI-66-LOP	4- 25	4- 92	4- 232
10	SJI-16-ORC	4- 18	4- 43	4- 132
11	SJI-17-ORC	4- 18	4- 44	4- 134

Table 4-14: SJI-N, E of Cape St Mary, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	SJI-67-LOP	4- 25	4- 93	4- 234
2	SJI-69-LOP	4- 25	4- 95	4- 238
3	SJI-70-LOP	4- 25	4- 96	4- 240
4	SJI-68-LOP	4- 25	4- 94	4- 236
5	SJI-04-SUC	4- 21	4- 31	4- 108
6	SJI-04-SUC	4- 21	4- 31	4- 108
7	SJI-52-JAM	4- 24	4- 78	4- 204
8	SJI-52-JAM	4- 24	4- 78	4- 204

Table 4-15: SJI-O, Entrance to Rosario Strait, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	SJI-67-LOP	4- 25	4- 93	4- 234
2	SJI-69-LOP	4- 25	4- 95	4- 238
3	SJI-70-LOP	4- 25	4- 96	4- 240
4	SJI-68-LOP	4- 25	4- 94	4- 236

Table 4-16: SJI-P, MacArthur Bank, Potential Spill Origin Booming Priority

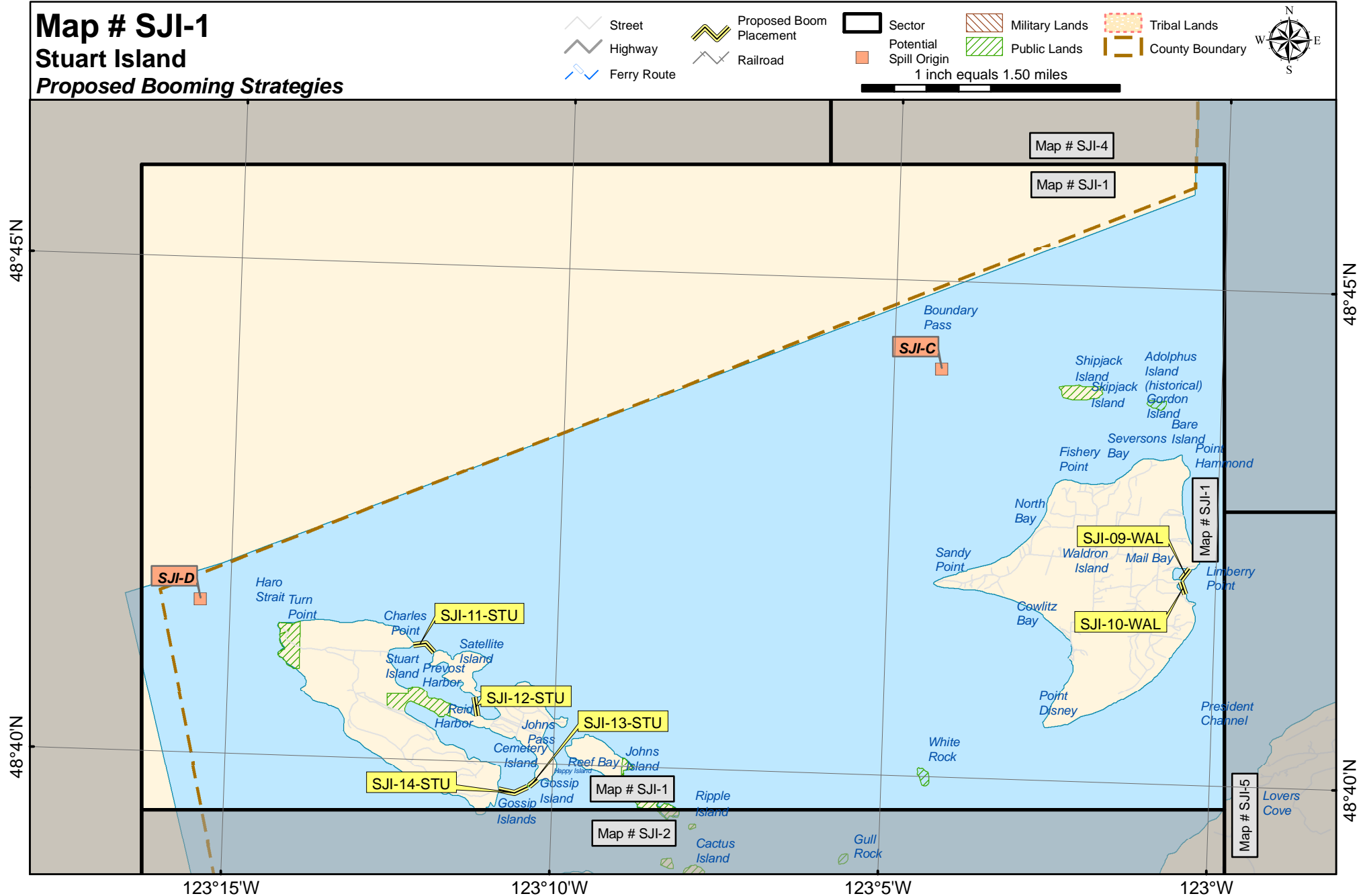
Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	SJI-70-LOP	4- 25	4- 96	4- 240
2	SJI-69-LOP	4- 25	4- 95	4- 238
3	SJI-68-LOP	4- 25	4- 94	4- 236
4	SJI-66-LOP	4- 25	4- 92	4- 232
5	SJI-65-LOP	4- 25	4- 91	4- 230

4.4 Proposed Booming and Collection Strategies - Maps

Map # SJI-1

Stuart Island

Proposed Booming Strategies



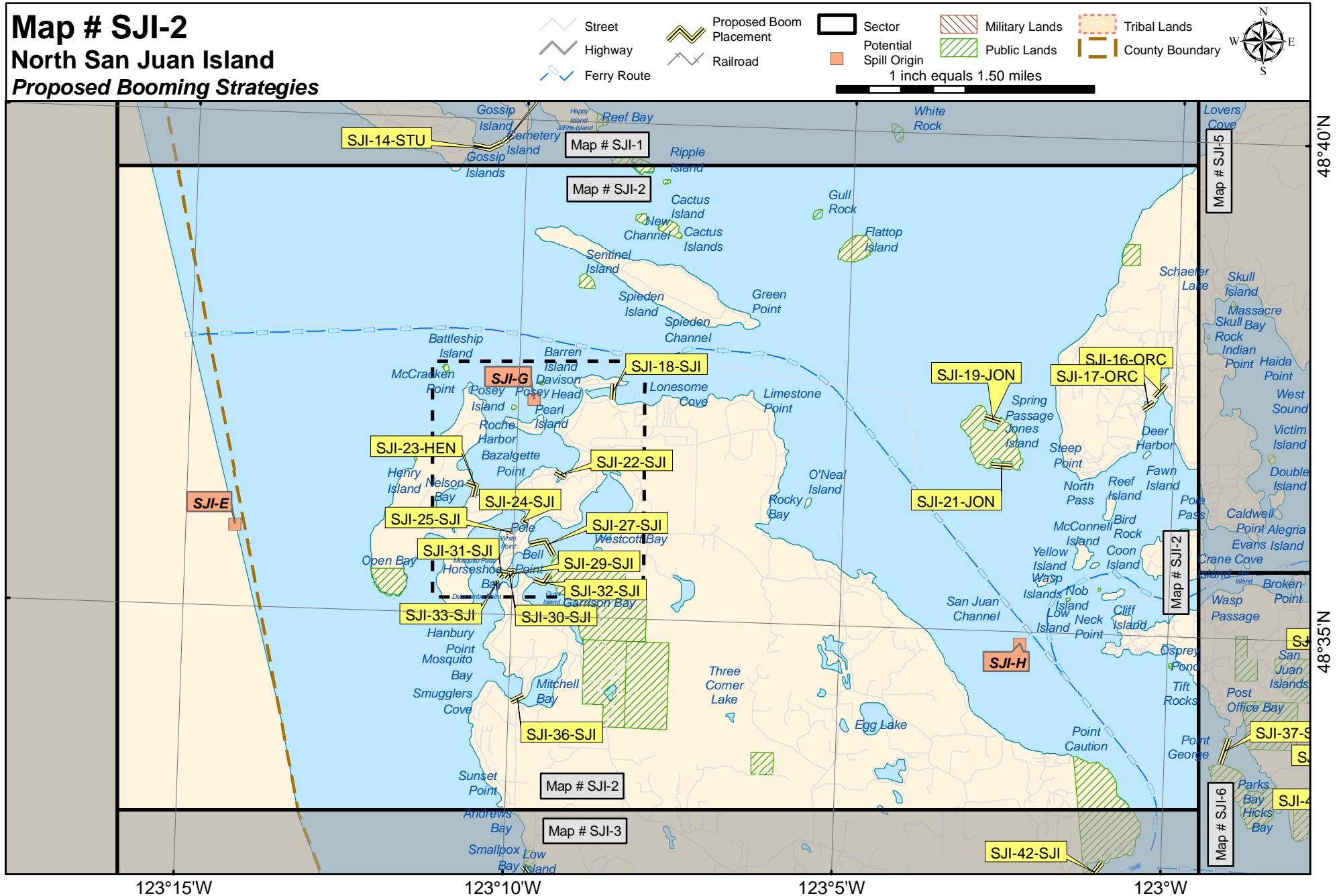
Map # SJI-2

North San Juan Island

Proposed Booming Strategies

48°40'N

48°35'N



Horseshoe Bay Area

Inset Level Map

Proposed Booming Strategies

Street
Highway
Ferry Route

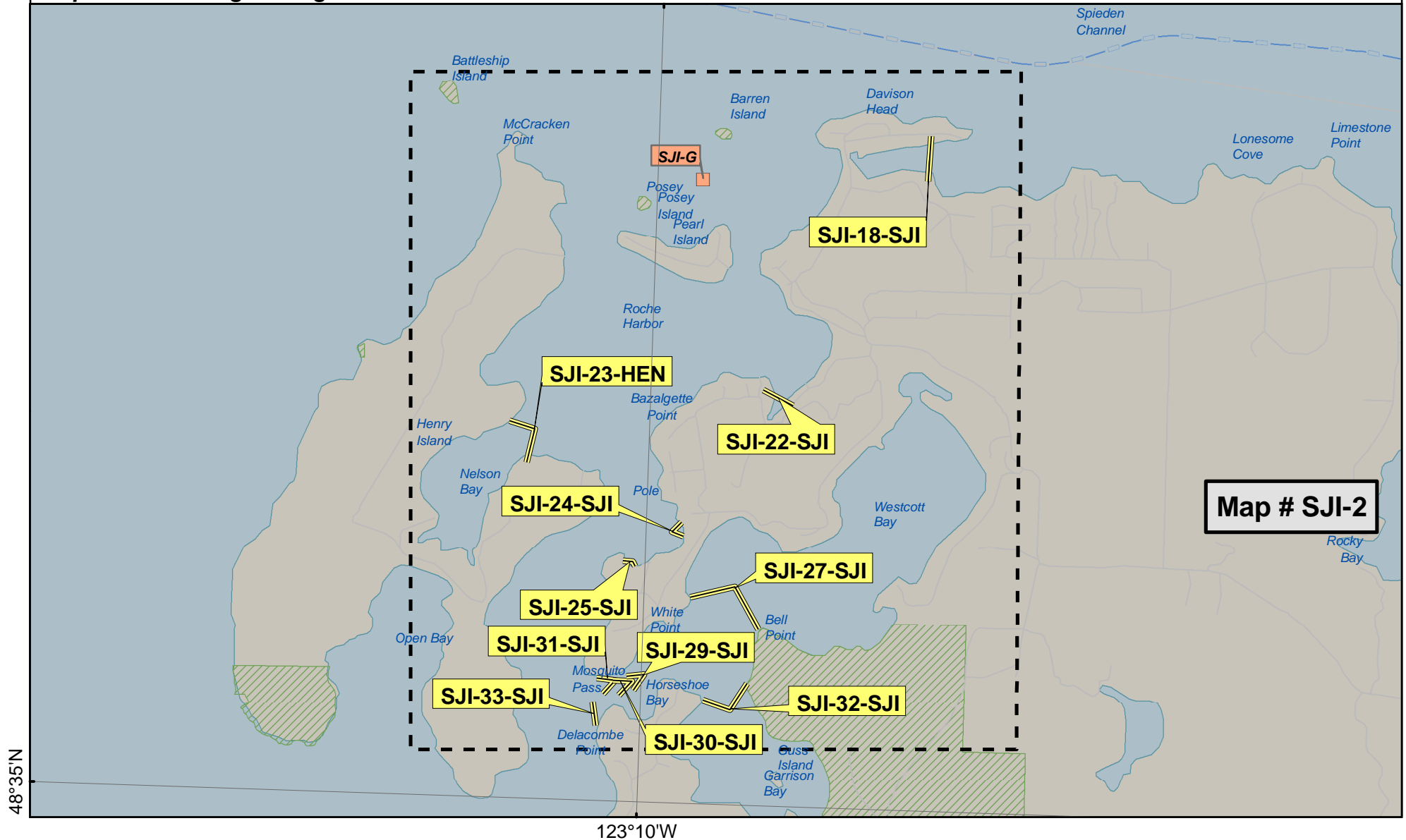
Proposed Boom Placement
Railroad

Sector
Potential
Spill Origin

Military Lands
Public Lands

Tribal Lands
County Boundary

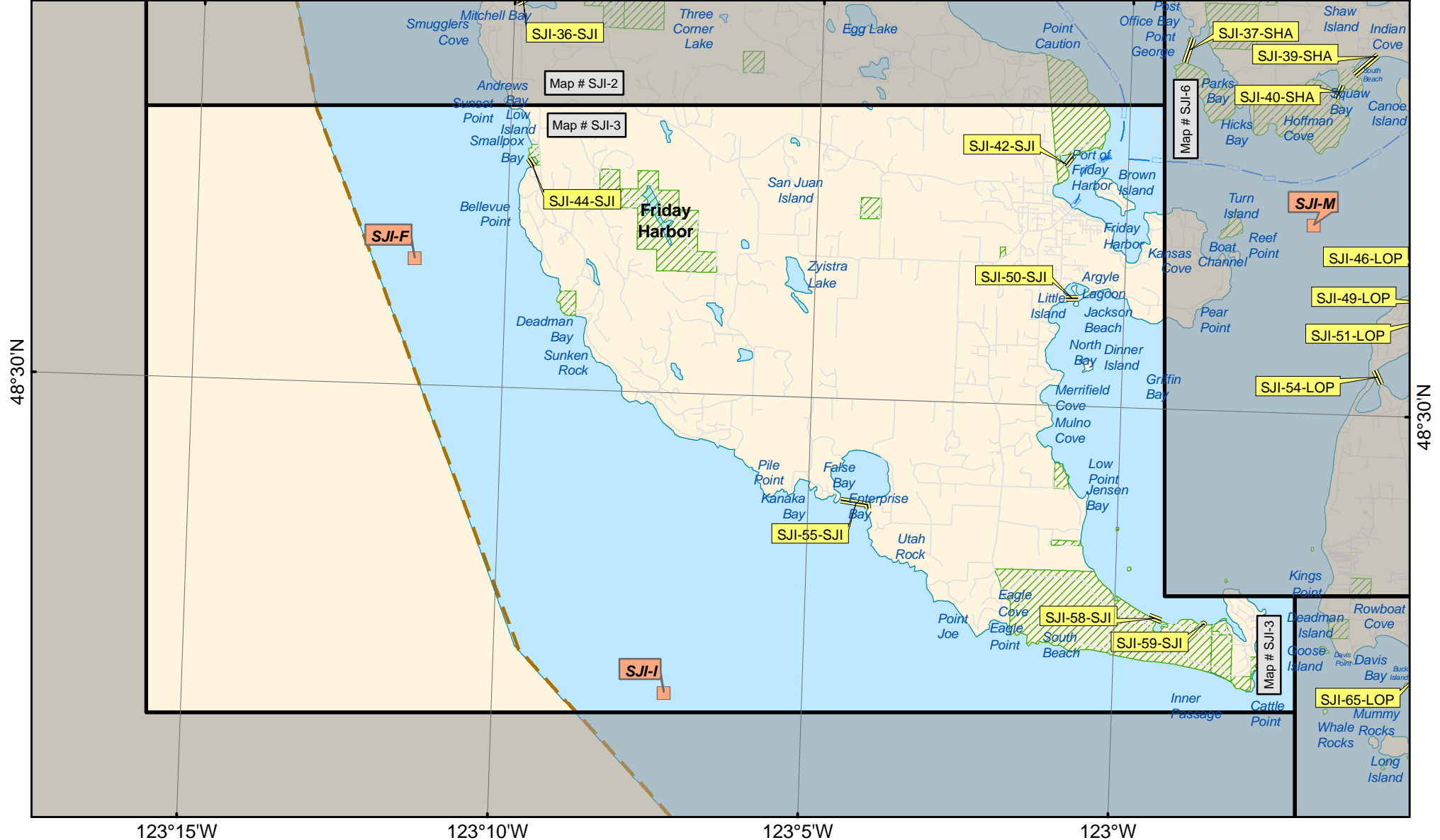
1 inch equals 0.55 miles



Map # SJI-3

South San Juan Island

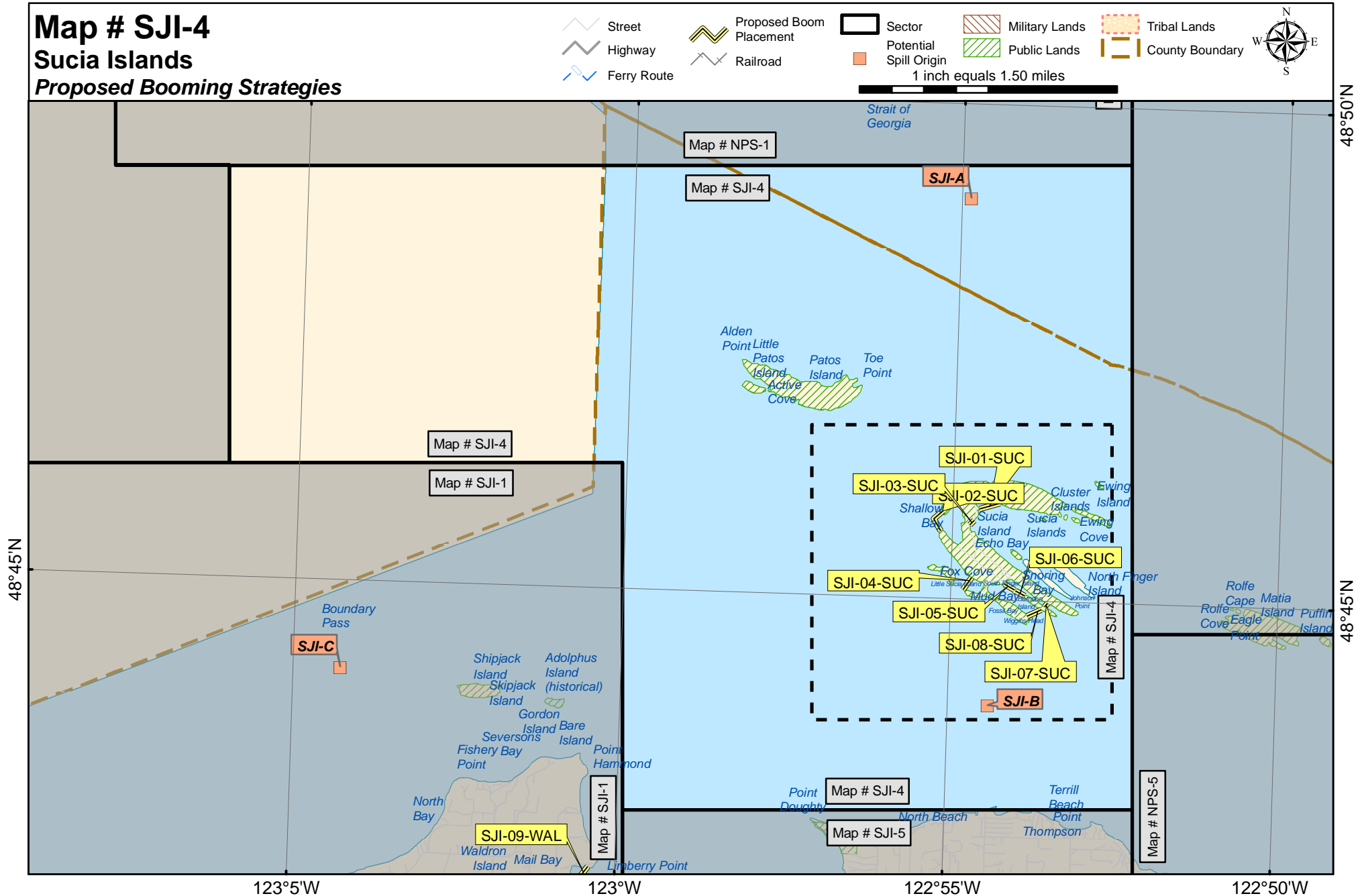
Proposed Booming Strategies



Map # SJI-4

Sucia Islands

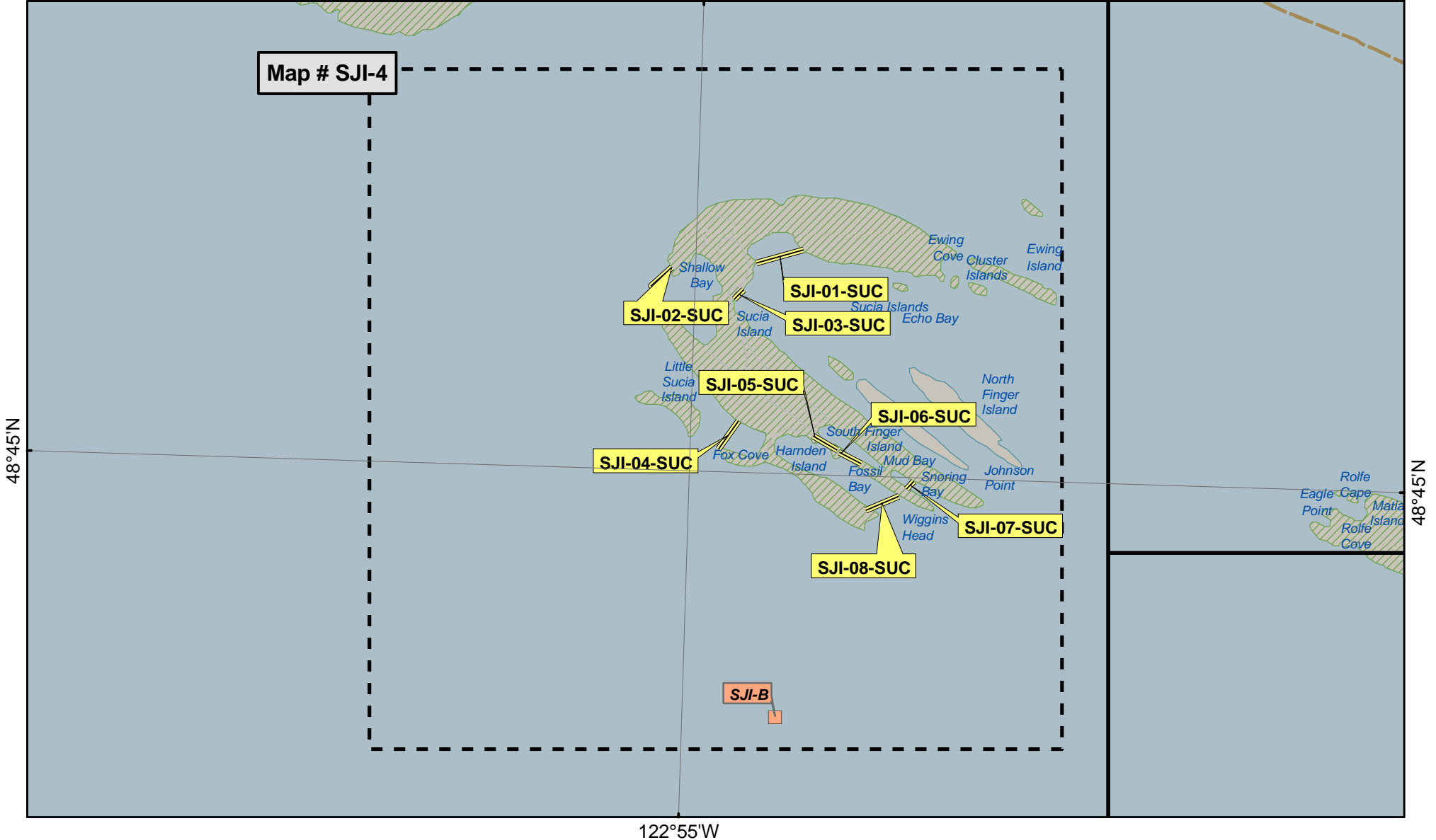
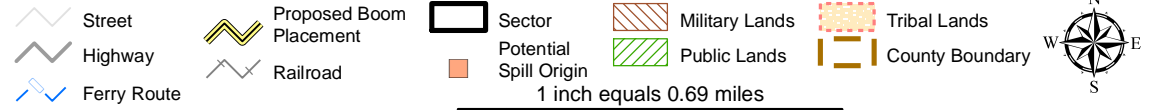
Proposed Booming Strategies



Sucia

Inset Level Map

Proposed Booming Strategies



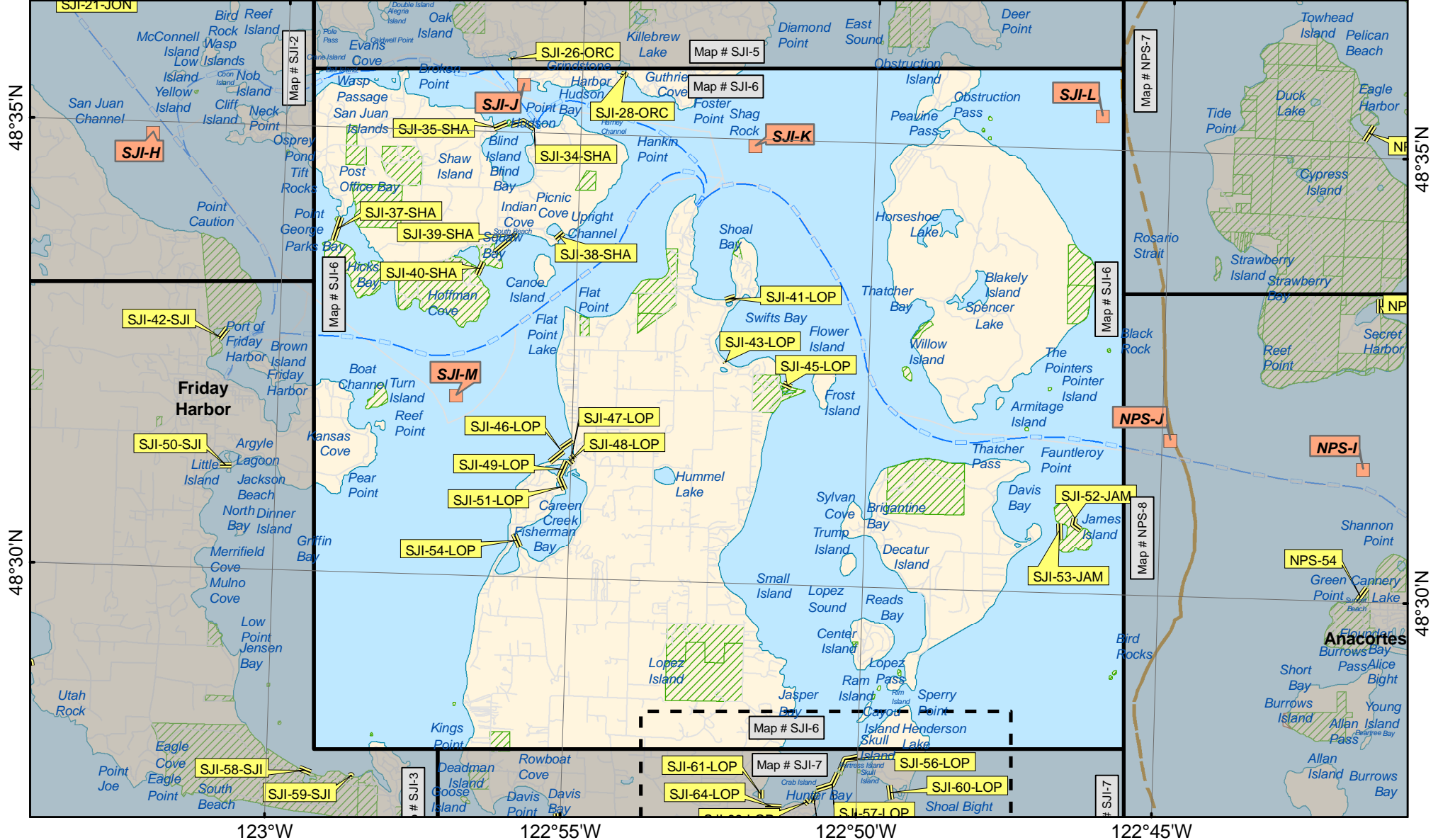
Proposed Booming Strategies



Map # SJI-6

North Lopez Island

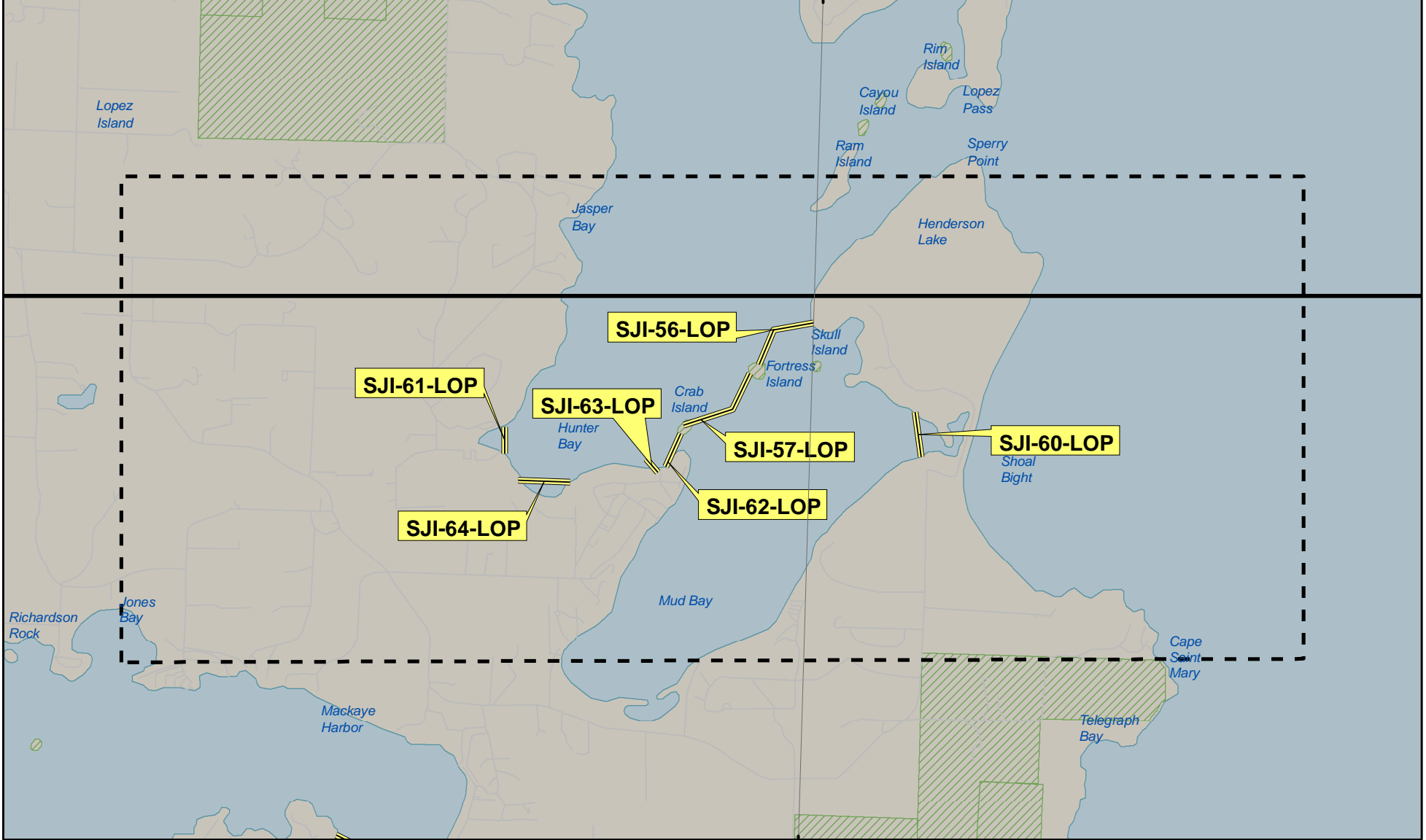
Proposed Booming Strategies





Hunter Bay Inset Level Map

Proposed Booming Strategies



122°50'W

4.5 Proposed Booming and Collection Strategies - Matrices

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-01-SUC	New - visited but not tested 09/16/2008	Echo Bay (E side of Sucia Island) N 48° 45.950' W 122° 54.443' map page 4-21 Chart #: 18431	Exclusion - Keep oil out of cove at the NE end of Echo Bay.	1500ft B2 - Contractor Boom	Deploy boom across opening use both shoreline stakes as well as anchors. If feasible use mooring buoys to help hold boom in place. Contact immediately or before entering: General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday) Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0976	public lands/facilities, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-02-SUC	Visited and Not Tested 09/16/2008	Shallow Bay (W side of Sucia Island) N 48° 45.805' W 122° 55.286' map page 4-17 Chart #: 18431	Exclusion - Keep oil out of bay	2000ft B2 - Contractor Boom	Deploy boom across entrance to Shallow Bay. Rock anchors bolts have been installed. If no upwelling use simple chevron. If strong upwelling, site requires a diamond configuration of boom, with upwell zone in center. With strong upwelling takes about 3 hours. Must be tended. Contact immediately or before entering: General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday) Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0963	marine birds, raptors, public lands/facilities, sensitive habitat, shellfish

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-03-SUC	New - visited but not tested 09/16/2008	W Cove, Echo Bay N 48° 45.779' W 122° 54.707' map page 4-21	Exclusion - Keep oil out of cove.	400ft B2 - Contractor Boom	Deploy boom across mouth of cove. Contact immediately or before entering: General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday) Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0976	public lands/facilities, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-04-SUC	Visited and Not Tested 09/16/2008	Fox Cove (SW corner of Sucia Island) N 48° 45.162' W 122° 54.749' map page 4-21 Chart #: 18431, 18430	Exclusion - Keep oil out of cove	1000ft B2 - Contractor Boom	Deploy boom across entrance to cove. Rock anchors have been installed at the high and low tide lines on the south side of the entrance. Use mooring buoy to supplement anchors. Contact immediately or before entering: General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday) Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0967	marine birds, shellfish, raptors, public lands/facilities, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-05-SUC	Visited and Not Tested 09/16/2008	Mud Bay - Fossil Bay NW Opening N 48° 45.140' W 122° 54.107' map page 4-21	Exclusion - Keep oil from moving between Mud and Fossil Bays	400ft B2 - Contractor Boom	Only needed if oil has reached the upper part of either Bay. Deploy boom across northwest entrance to bay, from the dock on Sucia Island to Herndon Island. Contact immediately or before entering: General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday) Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0970	marine birds, raptors, public lands/facilities, raptors, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-06-SUC	Visited and Not Tested 09/16/2008	Mud Bay - SE Opening (Inside Fossil Bay) N 48° 45.077' W 122° 53.938' map page 4-21	Exclusion - Keep oil from moving between bays	300ft B2 - Contractor Boom	Not needed if oil is not threatening upper sections of bays. Deploy boom across southeast entrance to bay, from Herndon Island to Wiggins Head. Contact immediately or before entering: General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday) Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0968	marine birds, raptors, public lands/facilities, sensitive habitat, shellfish

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-07-SUC	New - visited but not tested 09/16/2008	Snoring Bay N 48° 44.967' W 122° 53.536' map page 4-21	Exclusion - Keep oil out of Snoring Bay	400ft B2 - Contractor Boom	<p>Deploy boom across opening, may need to use a chevron depending on winds and currents. Adjust anchor points based on real-time conditions, but boom should be placed to reduce impact to as much shoreline as possible.</p> <p>Contact immediately or before entering: General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday) Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.</p>	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0969	marine birds, shellfish, public lands/facilities, raptors, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-08-SUC	Visited and Not Tested 09/16/2008	Fossil Bay Mouth (SE side of Sucia Island) N 48° 44.884' W 122° 53.718' map page 4-21 Chart #: 18431, 18430	Exclusion - Close off entrance to bay	1200ft B2 - Contractor Boom	Deploy boom across entrance to bay. Rock anchors have been installed at the high and low tide lines on the west side of the entrance. If not feasible, deploy SJI- 05-SUC and SJI-06-SUC instead. Contact immediately or before entering: General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday) Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0969	marine birds, shellfish, raptors, public lands/facilities, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-09-WAL	Visited and Not Tested 09/16/2008	Mail Bay (most N cove on E side of Waldron Island) N 48° 42.130' W 123° 0.467' map page 4-17 Chart #: 18432	Exclusion - Keep oil out of N cove.	1000ft B2 - Contractor Boom	Deploy boom from the small rocky point N of the cove at an angle to the SW to the point of the peninsula in the middle of the bay. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ1028	sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-10-WAL	New - visited but not tested 09/16/2008	Waldron Island (S cove of Mail Bay) N 48° 41.991' W 123° 0.497' map page 4-17	Exclusion - Keep oil out of cove.	900ft B2 - Contractor Boom	Deploy boom from N middle point to the S. Adjust angle based on real-time conditions. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ1028	sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-11-STU	Visited and Not Tested 09/16/2008	Prevost Harbor - W Entrance (N side Stuart Isl.) N 48° 41.178' W 123° 12.014' map page 4-17 Chart #: 18432	Exclusion - Keep oil out of harbor.	1600ft B2 - Contractor Boom	Deploy boom in a chevron configuration, from Charles Point to Satellite Island. The apex of the chevron can point to the north or south, depending on conditions and whichever is most feasible. Use extreme caution, numerous unmarked shallow rock reefs. Contact immediately or before entering: General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday) Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ1064	marine birds, public lands/facilities, sensitive habitat, special protection area

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-12-STU	Visited and Not Tested 09/16/2008	Prevost Harbor - E Entrance (N side Stuart Isl.) N 48° 40.558' W 123° 11.199' map page 4-17 Chart #: 18432	Exclusion - Keep oil out of harbor.	1200ft B2 - Contractor Boom	Deploy boom from the southern tip of Satellite Island to the closest point on Stuart Island. Use extreme caution, numerous unmarked shallow rock reefs. If conditions allow place the boom farther out, to do so will require an additional 400 ft. of boom. Contact immediately or before entering: General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday) Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ1051	marine birds, public lands/facilities, sensitive habitat, special protection area

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-13-STU	Visited and Not Tested 09/16/2008	Reid Harbor - E Entrance (S side Stuart Isl.) N 48° 39.814' W 123° 10.294' map page 4-17	Exclusion - Keep oil out of harbor.	300ft B2 - Contractor Boom	Deploy boom from the east side of Gossip Island, east to Stuart Island. The anchor point on the NE side of Gossip Island is very difficult to do. Might be best to wedge anchor or pins into cracks along rocks. Bring extra line and anchors. Contact immediately or before entering: General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday) Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ1099	shorebirds, marine birds, shellfish, public lands/facilities, sensitive habitat, special protection area

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-14-STU	Visited and Not Tested 09/16/2008	Reid Harbor - W Entrance (S side Stuart Isl.) N 48° 39.706' W 123° 10.594' map page 4-17	Exclusion - Keep oil out of harbor.	2000ft B2 - Contractor Boom	<p>Deploy boom in a chevron configuration, from the west side of Gossip Island, west to Stuart Island. Use mooring bouy to help anchoring on west side. The apex of the chevron can point to the north or south, depending on conditions. Last test deployment took 3 hours.</p> <p>Contact immediately or before entering: General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday) Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.</p>	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ1099	shorebirds, marine birds, shellfish, public lands/facilities, sensitive habitat, special protection area

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-15-ORC	Visited and Not Tested 09/16/2008	Crow Valley Creek N 48° 37.897' W 122° 57.460' map page 4-23	Exclusion - Keep oil out of creek, and reduce impact to cove.	200ft B2 - Contractor Boom	Deploy boom in a chevron, use shorestakes and anchor. Should be able to deploy from road, but a Jon boat will be needed to set anchor. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ1239	salmonids (anadromous)

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-16-ORC	Visited and Not Tested 09/16/2008	Deer Harbor - Lagoon at far N end of the Harbor N 48° 37.477' W 123° 0.220' map page 4-18 Chart #: 18434	Collection, exclusion - Keep oil out of inner harbor/ lagoon, collect with vac truck at road.	800ft B2 - Contractor Boom	Deploy boom from the west side of the harbor just south of the bridge at an angle to the southeast to the east side of the harbor. Collect oil with a vac truck from the road on the west side of the harbor. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ1190	waterfowl, shellfish, sensitive habitat, habitat restoration/mitigation site

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-17-ORC	Visited and Not Tested 09/16/2008	Deer Harbor - Cove on the W side of the Harbor N 48° 37.324' W 123° 0.407' map page 4-18 Chart #: 18434	Exclusion - Keep oil out of the cove.	2300ft B2 - Contractor Boom	The west attachment point is a bolt set in the bed rock at 48 37.23 -123 00.45. The east attachment point is adjusted depending on conditions: 1) High winds/strong currents attach at NW edge of cove. 800 ft boom 2) Moderate winds/currents attach at east bank of harbor between Cayou Quay and Deer Harbor Marina. 1900 ft of boom 3) Weak winds/currents attach at east bank south of both Marinas. 2300 ft of boom. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ1189	sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-18-SJI	Visited and Not Tested 09/17/2008	Neil Bay - Inside Davison Head N 48° 37.293' W 123° 8.566' map page 4-18 Chart #: 18433	Exclusion - Keep oil out of Neil Bay.	1000ft B2 - Contractor Boom	Deploy boom from point on the south shore of the bay entrance across to the north shore. On the S side go to E end of gravel beach, and anchor to large boulder, extend to N use any convenient pier on N side. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0119	waterfowl, marine birds, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-19-JON	Visited and Not Tested 09/16/2008	Jones Island - N Side Cove N 48° 37.141' W 123° 2.771' map page 4-18 Chart #: 18434	Exclusion - Keep oil out of the cove.	1000ft B2 - Contractor Boom	Deploy boom across the narrowest point of the entrance to the cove on the north side of the island. Attach boom to shore and anchor to maintain position. Contact immediately or before entering: General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday)	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ1367	public lands/facilities, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-20-ORC	Visited and Not Tested 09/15/2008	Buck Bay (Orcas Island, E side of E Sound) N 48° 37.055' W 122° 49.996' map page 4-23 Chart #: 18430	Exclusion, collection - Keep oil out of bay.	1400ft B2 - Contractor Boom	Deploy boom in chevron from the dock on the west side to the Johnston's property on the east side. This location keeps the boom in water even at low tide, most of bay becomes a mudflat at low tide. Requires 24/7 tending. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0829	waterfowl, baitfish, salmonids (anadromous), marine birds, shellfish, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-21-JON	Visited and Not Tested 09/16/2008	Jones Island - S Side Cove N 48° 36.672' W 123° 2.614' map page 4-18 Chart #: 18434	Exclusion - Keep oil out of the cove.	1500ft B2 - Contractor Boom	Deploy boom to keep oil out of both small coves on the south side of the island. Very exposed. If unable to put across opening to both coves, pull back and try just the cove to the west. Contact immediately or before entering: General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday)	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ1372	public lands/facilities, sensitive habitat
SJI-22-SJI	Visited and Not Tested 09/17/2008	Roche Harbor N 48° 36.436' W 123° 9.324' map page 4-18 Chart #: 18433	Exclusion - Keep oil out of tidal marsh.	300ft B2 - Contractor Boom	Deploy boom across the entrance to the tidal marsh south of the Roche Harbor Marina.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0130	sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-23-HEN	Visited and Not Tested 09/17/2008	Nelson Bay (Henry Island) N 48° 36.299' W 123° 10.615' map page 4-18 Chart #: 18433	Exclusion - Keep oil out of bay and salt marsh at end of bay.	1400ft B2 - Contractor Boom	Deploy boom in a chevron configuration at the entrance to the bay. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0206	marine birds, shellfish, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-24-SJI	New - visited but not tested 09/18/2008	White Point Marsh North N 48° 35.952' W 123° 9.862' map page 4-18	Exclusion - Keep oil out of marsh.	300ft B2 - Contractor Boom	Deploy boom in a chevron to prevent oil from moving into the marsh. Adjust angle based on flow. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0135	sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-25-SJI	New - visited but not tested 09/17/2008	White Point Marsh South N 48° 35.843' W 123° 10.067' map page 4-18	Exclusion - Keep oil out of marsh.	200ft B2 - Contractor Boom	Deploy boom across the opening to the marsh. Should be able to set stakes in shore, if needed also place Danforth in middle of boom. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0136	sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-26-ORC	New - visited but not tested 09/16/2008	Bay Head Marina N 48° 35.834' W 122° 56.223' map page 4-23	Exclusion - Keep oil out of Marina and creeks	300ft B2 - Contractor Boom	Deploy boom across the gap between the breakwater and the SE bank, adjust angle based on currents. Note: at low tide, area is muddy. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ1256	salmonids (anadromous)

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-27-SJI	Visited and Not Tested 09/17/2008	Westcott Bay N 48° 35.764' W 123° 9.542' map page 4-18 Chart #: 18433	Collection, exclusion - Keep oil out of bay.	2300ft B2 - Contractor Boom	Deploy boom in a chevron configuration at the entrance to the bay from the north tip of Bell Point to the northeast shore of White Point. Deploy with the apex pointing into Westcott Bay, and if oil present, collect oil at apex with a skimmer during flood tide. High priority site. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0141	waterfowl, baitfish, marine birds, shellfish, public lands/facilities, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-28-ORC	New - visited but not tested 09/16/2008	Grindstone Harbor N 48° 35.690' W 122° 54.298' map page 4-24	Exclusion - Keep oil out of harbor	500ft B2 - Contractor Boom	Deploy in chevron across narrow opening, adjust angle based on currents and winds. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ1266	salmonids (anadromous)

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-29-SJI	Visited and Not Tested 09/17/2008	Horseshoe Bay (Entrance Westcott & Garrison Bays) N 48° 35.447' W 123° 9.994' map page 4-18	Collection, deflection - Keep oil out of Westcott and Garrison Bays.	800ft B2 - Contractor Boom	One of three open water chevrons designed to concentrate oil into middle of channel for possible open water collection with skimmer. Chevron consists of 2 400foot legs at about a 35 degree angle. Requires 24/7 tending to adjust and collect oil. Adjust as needed based on real time conditions. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0138	waterfowl, baitfish, marine birds, shellfish, public lands/facilities, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-30-SJI	Visited and Not Tested 09/17/2008	Horseshoe Bay (Entrance Westcott & Garrison Bays) N 48° 35.423' W 123° 10.058' map page 4-18	Collection, deflection - Keep oil out of Westcott and Garrison Bays.	800ft B2 - Contractor Boom	One of three open water chevrons designed to concentrate oil into middle of channel for possible open water collection with skimmer. Chevron consists of 2 400foot legs at about a 35 degree angle. Requires 24/7 tending to adjust and collect oil. Adjust as needed based on real time conditions. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0138	waterfowl, baitfish, marine birds, shellfish, public lands/facilities, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-31-SJI	Visited and Not Tested 09/17/2008	Horseshoe Bay (Entrance Westcott & Garrison Bays) N 48° 35.424' W 123° 10.139' map page 4-18	Collection, deflection - Keep oil out of Westcott and Garrison Bays.	800ft B2 - Contractor Boom	One of three open water chevrons designed to concentrate oil into middle of channel for possible open water collection with skimmer. Chevron consists of 2 400foot legs at about a 35 degree angle. Requires 24/7 tending to adjust and collect oil. Adjust as needed based on real time conditions. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0138	waterfowl, baitfish, marine birds, shellfish, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-32-SJI	Visited and Not Tested 09/17/2008	Garrison Bay (NW side of San Juan Island) N 48° 35.338' W 123° 9.536' map page 4-18 Chart #: 18433	Collection, exclusion - Keep oil out of bay.	1300ft B2 - Contractor Boom	Deploy boom in a chevron configuration at the entrance to the bay, from the west shore of Bell Point to the opposite shoreline to the west. Deploy with the apex pointing into Garrison Bay, and if oil present, collect at the apex with a skimmer during flood tide. Be careful to minimize disturbance to soil. High priority site. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0159	waterfowl, baitfish, marine birds, shellfish, public lands/facilities, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-33-SJI	Visited and Not Tested 09/17/2008	Delacombe Pt. (S side of entrance to Westcott) N 48° 35.305' W 123° 10.243' map page 4-18	Deflection - Deflect oil out into center of channel for collection	400ft B2 - Contractor Boom	Deploy boom from the end of Delacombe Point to deflect the oil out to the collection strategy. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0175	waterfowl, baitfish, marine birds, shellfish, public lands/facilities, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-34-SHA	Visited and Not Tested 09/16/2008	Blind Bay - E Opening (N side of Shaw Island) N 48° 35.131' W 122° 55.993' map page 4-24	Exclusion - Keep oil out of bay.	1800ft B2 - Contractor Boom	Deploy boom from a piling south and west of the Shaw Island Ferry Dock to the east side of Blind Island (anchor bolts are set on island). Also run boom from piling to shore to close short gap. Boom can be deployed in a chevron configuration; adjust apex based on conditions. Contact immediately or before entering: General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday)	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0358	waterfowl, baitfish, marine birds, shellfish, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-35-SHA	Visited and Not Tested 09/16/2008	Blind Bay - W Opening (N side of Shaw Island) N 48° 35.080' W 122° 56.368' map page 4-24	Exclusion - Keep oil out of bay.	1100ft B2 - Contractor Boom	Deploy boom from the west side of Blind Island (anchor bolts are set on island) to pilings at a dock on Shaw Island. Be aware of shallow rocks just north of the booming location (site of numerous groundings). Contact immediately or before entering: General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday)	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0368	waterfowl, baitfish, marine birds, shellfish, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-36-SJI	Visited and Not Tested 09/17/2008	Mitchell Bay, entrance to inner bay N 48° 34.162' W 123° 9.865' map page 4-18 Chart #: 18433	Exclusion, collection - Keep oil out of the inner bay.	600ft B2 - Contractor Boom	Deploy boom across the inner bay entrance at narrowest point. Angle boom to north shoreline on point for possible collection. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0182	waterfowl, marine birds, shellfish, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-37-SHA	Visited and Not Tested 09/16/2008	Parks Bay (SW side Shaw Island) N 48° 33.860' W 122° 59.085' map page 4-24 Chart #: 18434	Exclusion - Keep oil out of bay.	2000ft B2 - Contractor Boom	Deploy boom near outer entrance to Parks Bay from the small island at the north end of the bay to the north end of the Point George Peninsula. The pass on the north side of the island is open only on a very high tide, boom if necessary. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0403	marine birds, shellfish, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-38-SHA	Visited and Not Tested 09/16/2008	Picnic Cove (SE side of Shaw Island) N 48° 33.856' W 122° 55.316' map page 4-24 Chart #: 18430, 18434	Exclusion - Keep oil out of Picnic Cove.	1000ft B2 - Contractor Boom	Deploy boom across entrance to Picnic Cove, shoreline is private property. Flood tides go S to N, Ebb tide goes E to W. Ebb tides create a faster current. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0345	marine birds, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-39-SHA	Visited and Not Tested 09/16/2008	Indian Cove (SE side of Shaw Island) N 48° 33.760' W 122° 56.219' map page 4-24 Chart #: 18434	Exclusion - Keep oil out of cove.	2000ft B2 - Contractor Boom	Deploy boom to keep oil away from shoreline in the northwest corner of Indian Cove (South Beach area). South attachment point is about 800ft SW of the launch ramp, angle boom towards N attachment point. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0336	marine birds, shellfish, public lands/facilities, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-40-SHA	Visited and Not Tested 09/16/2008	Squaw Bay (SE side of Shaw Island) N 48° 33.463' W 122° 56.644' map page 4-24 Chart #: 18434	Collection, exclusion - Keep oil out of bay. Deflect oil to east shore for collection.	1000ft B2 - Contractor Boom	Deploy boom at an angle across the entrance to the bay from a sandy beach on the west side of the entrance, northeast to the east shore of the entrance. The boom on the east shore can be placed so it will deflect oil into a small cove on the east shore. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0333	shellfish, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-41-LOP	Visited and Not Tested 09/15/2008	Shoal Bay Lagoon (NE side of Lopez Island) N 48° 33.211' W 122° 52.390' map page 4-24 Chart #: 18430, 18434	Exclusion - Keep oil from moving up tide gate.		Block the remains of a tide gate with boards, sandbags, etc. to keep oil from moving into area behind tide gate. Contact immediately or before entering: WDFW Emergency Hydraulic Project Approval, (M) 360-534-8233, 24-hour pager number. Responders must receive Emergency HPA from the WDFW prior to using culvert blocks and underflow dams. Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0559	shellfish, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-42-SJI	Visited and Not Tested 09/17/2008	Beaverton Cove N 48° 32.641' W 123° 0.961' map page 4-20 Chart #: 18434	Exclusion - Keep oil out of cove.	900ft B2 - Contractor Boom	Deploy boom across entrance to cove.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0071	sensitive habitat, special protection area

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-43-LOP	Visited and Not Tested 09/15/2008	Swift Bay Lagoon (NE side of Lopez Island) N 48° 32.501' W 122° 52.433' map page 4-24 Chart #: 18429, 18430	Exclusion - Keep oil out of the marsh.		Block the culvert with boards, sandbags, etc. Tidal dependent - below 3.2 the culvert is above the water surface, above 6.2 culvert is below water surface. Contact immediately or before entering: WDFW Emergency Hydraulic Project Approval, (M) 360-534-8233, 24-hour pager number. Responders must receive Emergency HPA from the WDFW prior to using culvert blocks and underflow dams. Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0546	sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-44-SJI	Visited and Not Tested 09/17/2008	Smallpox Bay - County Park N 48° 32.429' W 123° 9.644' map page 4-20 Chart #: 18433	Exclusion, collection - Keep oil out of bay, and if oil present collect.	500ft B2 - Contractor Boom	Deploy boom across the entrance to the bay, adjust location based on real-time conditions, with rough conditions will need to move farther into bay. If oil is present, adjust boom to allow for collection by vac truck.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0261	waterfowl, public lands/facilities

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-45-LOP	Visited and Not Tested 09/15/2008	Spencer Spit Lagoon (NE side of Lopez Island) N 48° 32.253' W 122° 51.376' map page 4-24 Chart #: 18429, 18430	Exclusion - Keep oil out of the lagoon on Spencer Spit.	100ft B2 - Contractor Boom	Two options: 1) Blocking the entrance with a temporary dike, boards, sandbags, etc., will need heavy equipment as gap can be 80 feet. Requires HPA, see contact info. 2) Deploy boom in front of the lagoon entrance. If possible do #1 as it would be most effective. Contact immediately or before entering: WDFW Emergency Hydraulic Project Approval, (M) 360-534-8233, 24-hour pager number. Responders must receive Emergency HPA from the WDFW prior to using culvert blocks and underflow dams. General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday)	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0541	waterfowl, shorebirds, sensitive habitat, public lands/facilities

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-46-LOP	Visited and Not Tested 09/15/2008	Fishermen's Bay - Outside entrance to bay N 48° 31.375' W 122° 55.252' map page 4-24 Chart #: 18430, 18434	Exclusion - Keep oil out of Fishermen's Bay. if not feasible, deploy SJI-49-LOP and SJI-51-LOP after SJI-47 and SJI-48	2200ft B2 - Contractor Boom	<p>Deploy boom in two cascading sections to deflect oil away from the bay entrance. For the first section, deploy 1000' of boom from a point on the shore north of the county access at about 48°-31.525'N 122°-5.980'W to the channel navigational marker (do not attach the boom to the marker). Deploy 1200' of boom for the second section from the navigation marker to the shore on the peninsula about 1500-1700 feet west from the entrance channel at 48°-31.310'N 122°-55.445'W. Overlap the boom sections by about 100', with the first section on the outside.</p> <p>Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.</p>	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0585	waterfowl, shorebirds, marine birds, herons & other wading birds, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-47-LOP	Visited and Not Tested 09/15/2008	Fishermen's Bay - E side of entrance channel N 48° 31.371' W 122° 54.981' map page 4-24	Collection, exclusion - Keep oil out of Fishermen's Bay, collect oil if present.	100ft B2 - Contractor Boom	Deploy boom from the beach on the east side of the entrance channel to collect oil entering the bay on a flood tide. Current through the channel can be very strong, adjust angle and length of boom accordingly. Vac truck must remain on road or hardened surface. If collection of oil not feasible, skip this strategy and deploy SJI-49-LOP and SJI-51-LOP. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0586	waterfowl, shorebirds, marine birds, herons & other wading birds, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-48-LOP	Visited and Not Tested 09/15/2008	Fishermen's Bay - E side of entrance channel N 48° 31.321' W 122° 55.004' map page 4-24	Collection, exclusion - Keep oil out of Fishermen's Bay, collect oil if present	100ft B2 - Contractor Boom	Deploy boom from the beach on the east side of the entrance channel to collect oil entering the bay on a flood tide. Current through the channel can be very strong, adjust angle and length of boom accordingly. Shoreline is vac truck accessible. Vac truck must remain on road or hardened surface. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0586	waterfowl, shorebirds, herons & other wading birds, marine birds, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-49-LOP	Visited and Not Tested 09/15/2008	Fishermen's Bay - N cove, W side of entrance chan. N 48° 31.239' W 122° 55.135' map page 4-24 Chart #: 18430, 18434	Exclusion - Keep oil out of the cove.	1000ft B2 - Contractor Boom	Necessary only if LOP-47 cannot be deployed or is unlikely to exclude oil from the bay due to strong flood tide currents, or winds from the north or west. Deploy boom across the mouth of the cove from north to south to keep oil out of the cove. If collection of oil not feasible, skip this strategy and deploy SJI-49-LOP and SJI-51-LOP. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0603	shorebirds, herons & other wading birds, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-50-SJI	Visited and Not Tested 09/15/2008	Argyle Lagoon - N Bay N 48° 31.161' W 123° 0.847' map page 4-20 Chart #: 18434	Exclusion, collection - Keep oil out of lagoon.	600ft B2 - Contractor Boom	Deploy boom across lagoon entrance. Generally best to deploy inside the channel as it is more protected. Best site is from the ramp with the floating dock across to point on E side. If oil is present, boom can be angled to collect oil on ramp side. Area is vac truck accessible. High priority site.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0031	shellfish, sensitive habitat, special protection area

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-51-LOP	Visited and Not Tested 09/15/2008	Fishermen's Bay - S cove, W side of entrance chan. N 48° 31.076' W 122° 55.145' map page 4-24 Chart #: 18430, 18434	Exclusion - Keep oil out of the cove.	1000ft B2 - Contractor Boom	Necessary only if strategy at mouth of channel cannot be deployed or is unlikely to exclude oil from the bay due to strong flood tide currents, or winds from the north or west. Deploy boom across the mouth of the cove from northwest to southeast to keep oil out of the cove. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0602	waterfowl, sensitive habitat, herons & other wading birds

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-52-JAM	Visited and Not Tested 09/15/2008	James Island - E Side Cove N 48° 30.817' W 122° 46.371' map page 4-24 Chart #: 18430, 18429	Exclusion - Keep oil out of the cove.	1000ft B2 - Contractor Boom	Deploy boom in an inverted chevron, use point in the middle of the cove to attach boom to the shore, and anchor to maintain position. If possible, use mooring buoys to help hold boom in place. Contact immediately or before entering: General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday) Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0703	public lands/facilities

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-53-JAM	Visited and Not Tested 09/15/2008	James Island - W Side Cove N 48° 30.700' W 122° 46.692' map page 4-24 Chart #: 18430, 18429	Exclusion - Keep oil out of the cove.	1400ft B2 - Contractor Boom	Deploy boom across the narrowest part of the entrance to the cove on the west side of the island. Attach boom to the shore, and anchor to maintain position. If possible, use mooring buoys to help hold boom in place. Contact immediately or before entering: General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday) Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0707	public lands/facilities

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-54-LOP	Visited and Not Tested 09/15/2008	Fishermen's Bay - Lagoon at S end of bay N 48° 30.419' W 122° 55.875' map page 4-24 Chart #: 18434	Exclusion - Keep oil out of the lagoon.	1000ft B2 - Contractor Boom	Deploy boom across the entrance to the lagoon. Access may be difficult, much of the entrance is a mudflat at low tide. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0598	waterfowl, shorebirds, herons & other wading birds, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-55-SJI	Visited and Not Tested 09/17/2008	False Bay (SW side of San Juan Island) N 48° 28.897' W 123° 4.232' map page 4-20 Chart #: 18433, 18434	Collection, exclusion - Keep oil out of bay or divert oil to collection point on beach where it can be recovered.	2300ft B2 - Contractor Boom	Deploy 2000' of boom at an angle across the entrance of the bay. May be possible to collect oil at a small pocket beach on the east side. Use the remaining 300' of boom to direct the oil to the collection site. Vac truck would need 200 ft hose and booster pump. Rock anchors are very important at this location and the cable between the high and low bolt on the west side of the entrance is also important due to the steep bed rock shore and intensity of the flood tide hitting that side of the entrance. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0292	waterfowl, shorebirds, baitfish, salmonids (anadromous), marine birds, shellfish, raptors, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-56-LOP	Visited and Not Tested 09/15/2008	Mud Bay - From Fortress Isl. to Sperry Pen. N 48° 28.068' W 122° 50.177' map page 4-25	Exclusion - Keep oil out of the bay.	1800ft B2 - Contractor Boom	Deploy boom in a chevron from Fortress Island to the shore on the Sperry Peninsula. Fortress Island does have bolts. Oil entrained under the boom between Crab Island and Fortress Island may circle around the bay and move north to this boom. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0485	waterfowl, baitfish, shorebirds, marine birds, shellfish, herons & other wading birds, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-57-LOP	Visited and Not Tested 09/15/2008	Mud Bay - From Crab Island to Fortress Island N 48° 27.766' W 122° 50.469' map page 4-25	Exclusion - Keep oil out of the bay.	2000ft B2 - Contractor Boom	Deploy boom from Crab Island to Fortress Island in a chevron configuration with the apex pointed into Mud Bay. Rock anchors have been installed at the high and low tide lines on the southwest corner of Fortress Island, directly across from Crab Island. Also there are rock anchors on Crab Island. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0484	waterfowl, shorebirds, baitfish, marine birds, shellfish, herons & other wading birds, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-58-SJI	New - visited but not tested 09/18/2009	Jakles Lagoon N 48° 27.758' W 122° 59.341' map page 4-20 Chart #: 18434	Exclusion - Keep oil out of lagoon.	100ft B2 - Contractor Boom	Much of the year the channel to the lagoon is closed-off. Contact the National Park to determine status of opening. If open, deploy boom across opening. Be careful to minimize disturbance to beach. Requires 24 hour presence to insure channel stays closed. Contact immediately or before entering: Dederick Peter, NPS SJI, (W) 360 378-2240, Contact for access, local information for English Camp and American Camp.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0015	waterfowl, shorebirds, salmonids (anadromous), herons & other wading birds, public lands/facilities, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-59-SJI	New - visited but not tested 09/18/2008	Third Lagoon SJI N 48° 27.717' W 122° 58.562' map page 4-20	Exclusion - Keep oil out of lagoon and salt marsh.	200ft B3 - River Boom, or other appropriate type	Deploy chevron on the outside of the channel into open water. Be careful to minimize disturbance to beach. Contact immediately or before entering: Dederick Peter, NPS SJI, (W) 360 378-2240, Contact for access, local information for English Camp and American Camp.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0013	waterfowl, shorebirds, salmonids (anadromous), herons & other wading birds, public lands/facilities, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-60-LOP	Visited and Not Tested 09/15/2008	Mud Bay - Backup for SJI-62 -LOP N 48° 27.710' W 122° 49.429' map page 4-25 Chart #: 18429	Exclusion - Keep oil out of far end of bay and salt marsh.	1000ft B2 - Contractor Boom	Deploy boom across the entrance to the cove to protect the lagoon and tidal marsh. This is a backup strategy. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0488	waterfowl, shorebirds, shellfish, herons & other wading birds, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-61-LOP	New - visited but not tested 09/15/2008	Hunter Bay West Cove N 48° 27.645' W 122° 51.618' map page 4-25	Exclusion - Keep oil out of cove	600ft B2 - Contractor Boom	Deploy boom across cove opening. If feasible use mooring buoys, and pier to help hold boom in place. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0506	baitfish, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-62-LOP	Visited and Not Tested 09/15/2008	Mud Bay - From the W Shore to Crab Island N 48° 27.629' W 122° 50.723' map page 4-25	Exclusion - Keep oil out of the bay.	800ft B2 - Contractor Boom	Deploy boom from Crab Island to the county dock on the west shore. Oil moving past the county dock will be directed to the booms east of Crab Island for collection. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0502	waterfowl, shorebirds, baitfish, marine birds, shellfish, herons & other wading birds, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-63-LOP	New - visited but not tested 09/15/2008	Hunter Bay Dock Area N 48° 27.571' W 122° 50.830' map page 4-25 Chart #: 18429	Collection - Collect oil at dock	800ft B2 - Contractor Boom	<p>Deploy boom so that currents aid in collection at dock. Area is vac truck accessible. Currents can be very strong, will require 24/7 tending. Purpose of boom is collection not protection of dock.</p> <p>Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.</p>	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0502	general fish & wildlife resources

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-64-LOP	New - visited but not tested 09/15/2008	Hunter Bay South Cove N 48° 27.506' W 122° 51.400' map page 4-25	Exclusion - Keep oil out of cove	1000ft B2 - Contractor Boom	Deploy boom across cove opening. If feasible use mooring buoys to help hold boom in place. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0504	baitfish, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-65-LOP	Visited and Not Tested 09/15/2008	Davis Bay - SE Side (SW corner of Lopez Isl.) N 48° 27.242' W 122° 55.043' map page 4-25 Chart #: 18434	Exclusion - Keep oil out of the southeast side of the bay.	1500ft B2 - Contractor Boom	Deploy boom in a chevron configuration from the rocky point due east of Buck Island to the second rocky point to the north. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0628	sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-66-LOP	Visited and Not Tested 09/15/2008	Barlow Bay N 48° 26.188' W 122° 52.282' map page 4-25 18429	Exclusion - Keep oil out of the Barlow Bay, if oil is pushed on to beach on eastern side, collect it.	1800ft B2 - Contractor Boom	Deploy boom across the opening of Barlow Bay; if oil is pushed to beach to the east, oil can be collected with vac truck. Salmon Point dock provides access and in a location where the water isn't too shallow, as it is much of the time on the shore at the head of the bay. IOSA has property owner contacts for the Salmon Point dock. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0661	baitfish, marine birds, sensitive habitat, waterfowl

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-67-LOP	Visited and Not Tested 09/15/2008	Watmough Bay N 48° 25.913' W 122° 48.691' map page 4-25 Chart #: 18429	Exclusion - Keep oil out of the bay.	1000ft B2 - Contractor Boom	Deploy boom across bay at a point about half way into the bay. Feasibility depends on the direction and speed of the wind. This site is usually protected and the boom is easy to set. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number. BLM SJI contact, (W) 360 468-3754, Nick Teague	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0456	marine birds, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-68-LOP	Visited and Not Tested 09/15/2008	Hughes Bay (S end of Lopez Island) N 48° 25.720' W 122° 50.380' map page 4-25 Chart #: 18429	Collection, exclusion - If conditions are favorable keep oil out of the bay, if oil is being forced into bay use site to collect oil.	2000ft B2 - Contractor Boom	Deploy boom across the entrance to the bay if conditions are favorable, site is exposed and often rough. With wind from the south or southwest, the boom can be deployed from the west side of the bay entrance to a point at the head of the bay to the north. if there is too much wind exposure for the primary strategy, the boom is pulled north to the mid-section of the head of the bay. This backup strategy would require 1700-2000' of boom. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0438	marine birds, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-69-LOP	Visited and Not Tested 09/15/2008	McArdle Bay (S end of Lopez Island) N 48° 25.587' W 122° 49.774' map page 4-25 Chart #: 18429	Exclusion, collection - If conditions allow, keep oil out of the bay, if not use bay to collect oil.	1000ft B2 - Contractor Boom	Deploy boom across the entrance to the bay if conditions are favorable (anchor bolts have been installed), site is exposed and often rough. Currents and wind tend to push oil into the bay. To use the bay for collection, deploy the boom out from each side of the entrance to enhance collection. Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0443	marine birds, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-17: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
SJI-70-LOP	Visited and Not Tested 09/15/2008	Aleck Bay (S end of Lopez Island) N 48° 25.566' W 122° 51.117' map page 4-25 Chart #: 18429	Exclusion - Keep oil out of the bay.	1800ft B2 - Contractor Boom	Deploy boom across the narrowest point at the mouth of the bay. Aleck Bay is the least exposed of the three strategies in this area, and booming is achievable more often than for Hughes and McArdle Bays. IOSA has access to a parking area at the head of the bay (via dirt road). Contact immediately or before entering: Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151. Ask Sheriff's dispatcher to page IOSA. Be sure to provide a way for IOSA personnel to contact you, such as phone number.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SNJ0429	marine birds, sensitive habitat

APPENDIX A - BOAT LAUNCH LOCATIONS SUMMARY

Appendix A: Boat Launch Locations Summary

Reference Number	Site Name	Location	Facility Description
Motorboat Launch Inventory			
BL-62	Bartwood Lodge	Sector Map SJI-5 N 48° 42.783'/ W 122° 53.417' President Channel	Car Parking, Paved and striped - 38 Launches, Loading float - 1 Launches, Ramp - concrete, solid - 1
BL-70	West Beach Resort	Sector Map SJI-5 N 48° 41.317'/ W 122° 57.467' President Channel	Launches, Loading float - 1 Launches, Ramp - concrete, solid - 1 Trailer Parking, Gravel - 3 Waste Disposal, Trash receptacle - 3
BL-81	Rosario Resort	Sector Map SJI-5 N 48° 38.783'/ W 122° 52.350' Cascade Bay	Launches, Ramp - concrete, solid - 1
BL-83	West Sound Marina	Sector Map SJI-5 N 48° 37.550'/ W 122° 57.267' White Beach Bay	Car Parking, Gravel - 5 Launches, Hoist - portable - 1 Launches, Loading float - 1 Trailer Parking, Gravel - 20 Waste Disposal, Pumpout -
BL-86	Roche Harbor Resort	Sector Map SJI-2 N 48° 36.467'/ W 123° 9.267' Roche Harbor	Car Parking, Gravel - 10 Fencing, Gates - 1 Launches, Ramp - concrete, solid - 1 Trailer Parking, Gravel - 50 Waste Disposal, Pumpout -
BL-87	Obstruction Pass Launching Ramp	Sector Map SJI-5 N 48° 36.317'/ W 122° 49.050' Obstruction Pass	Car Parking, Paved no striping - 15 Launches, Loading float - 1 Launches, Ramp - concrete, solid - 1 Restrooms, Portable sani-cans - 1 Trailer Parking, Paved no striping - 6

Appendix A: Boat Launch Locations Summary

Reference Number	Site Name	Location	Facility Description
Motorboat Launch Inventory			
BL-96	Snug Harbor Resort and Marina	Sector Map SJI-2 N 48° 34.267' W 123° 10.100' Mitchell Bay	Car Parking, Gravel - 10 Launches, Loading float - 1 Launches, Ramp - concrete, solid - 1 Trailer Parking, Gravel - 15
BL-98	Sportsman Lake (WDFW)	Sector Map SJI-2 N 48° 34.217' W 123° 4.250' Sportsman Lake	Launches, Ramp - natural - 1 Restrooms, Portable sani-cans - 1 Trailer Parking, Gravel - 3
BL-101	Egg Lake (WDFW)	Sector Map SJI-2 N 48° 33.933' W 123° 4.917' Egg Lake	Car Parking, Paved no striping - 2 Launches, Loading float - 1 Launches, Ramp - gravel - 1 Trailer Parking, Paved no striping - 1
BL-104	South Beach Park (Shaw Island)	Sector Map SJI-6 N 48° 33.867' W 122° 56.067' Indian Cove	Launches, Ramp - natural - 1 Trailer Parking, Gravel - 5
BL-105	Odlin Park - Lopez Island	Sector Map SJI-6 N 48° 33.433' W 122° 53.433' Upright Channel	Car Parking, Gravel - 10 Launches, Ramp - concrete, solid - Restrooms, Vault - 4 Trailer Parking, Paved and striped - 10
BL-107	San Juan County Park	Sector Map SJI-3 N 48° 32.517' W 123° 9.567' Small Pox Bay	Launches, Ramp - concrete, solid - 1 Restrooms, Portable sani-cans - 2 Trailer Parking, Gravel - 10 Waste Disposal, Trash receptacle - 3
BL-115	Jackson Beach Park (Friday Harbor)	Sector Map SJI-3 N 48° 31.150' W 123° 0.817' North Bay (San Juan Island)	Car Parking, Gravel - 5 Fencing, Perimeter fence - 2 Launches, Loading float - 1 Launches, Ramp - concrete, solid - 1 Trailer Parking, Gravel - 12

Appendix A: Boat Launch Locations Summary

Reference Number	Site Name	Location	Facility Description
Motorboat Launch Inventory			
BL-116	Hummel Lake (WDFW)	Sector Map SJI-6 N 48° 31.283' W 122° 53.550' Hummel Lake	Launches, Ramp - natural - 1 Restrooms, Vault - 1 Trailer Parking, Gravel - 10
BL-117	Island Marine Center (IMC)	Sector Map SJI-6 N 48° 30.867' W 122° 54.800' Fishermans Bay	Launches, Hoist - portable - 2 Launches, Ramp - concrete, solid - 1 Trailer Parking, Gravel - 10 Waste Disposal, Pumpout - 1
BL-144	Hunter Bay Boat Ramp	Sector Map SJI-7 N 48° 27.533' W 122° 50.750' Hunter Bay	Car Parking, Gravel - 10 Launches, Loading float - 1 Launches, Ramp - concrete, solid - 1 Trailer Parking, Gravel - 15
BL-149	Mackaye Harbor Launching Ramp	Sector Map SJI-7 N 48° 26.500' W 122° 51.800' Mackaye Harbor	Car Parking, Gravel - 15 Launches, Ramp - concrete, plank - 1 Trailer Parking, Gravel - 15

APPENDIX B - DETAILED STRATEGY LOCATIONS AND DESCRIPTIONS

Site Lat/Long:	N 48° 45.950' / W 122° 54.443', Sector Map SJI-4
Strategy Objective:	Exclusion - Keep oil out of cove at the NE end of Echo Bay.
Implementation:	Deploy boom across opening use both shoreline stakes as well as anchors. If feasible use mooring buoys to help hold boom in place.
Field Notes:	By boat from Anacortes, Bellingham, or Friday Harbor. No vehicle access.
Resources Targeted:	public lands/facilities, sensitive habitat
Fixed Anchors:	198: N 48° 45.988' / W 122° 54.294', Water Depth 0ft, E shoreline anchor point, adjust as needed
Watercourse Description:	Bay, large pocket beach at the end of the bay

**Suggested Equipment**

Quantity	Description
1500 ft	B2 - Contractor Boom
6 each	Danforth(s) or other appropriate anchor
8 each	Stake(s)
2 each	Work Boat(s)

Suggested Personnel

2	Boat Operator (s)
4	Laborer (s)

Status: New - visited but not tested 09/16/2008

SJI

Small cove



N 48° 45' 48.27" W 122° 54' 18.78"

NW
09/16/2008

Image-1206: Small pocket beach

SJI

W anchor point



N 48° 45' 48.27" W 122° 54' 18.78"

N
09/16/2008

Image-1205: W anchor point

Site Contact Information

High Priority - contact immediate or before entering:

General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday)
Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151,
Contact San Juan County Sheriff at 360-378-4151.

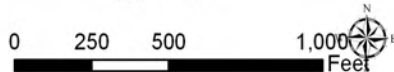
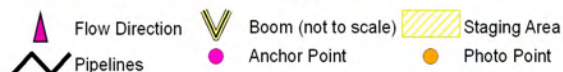
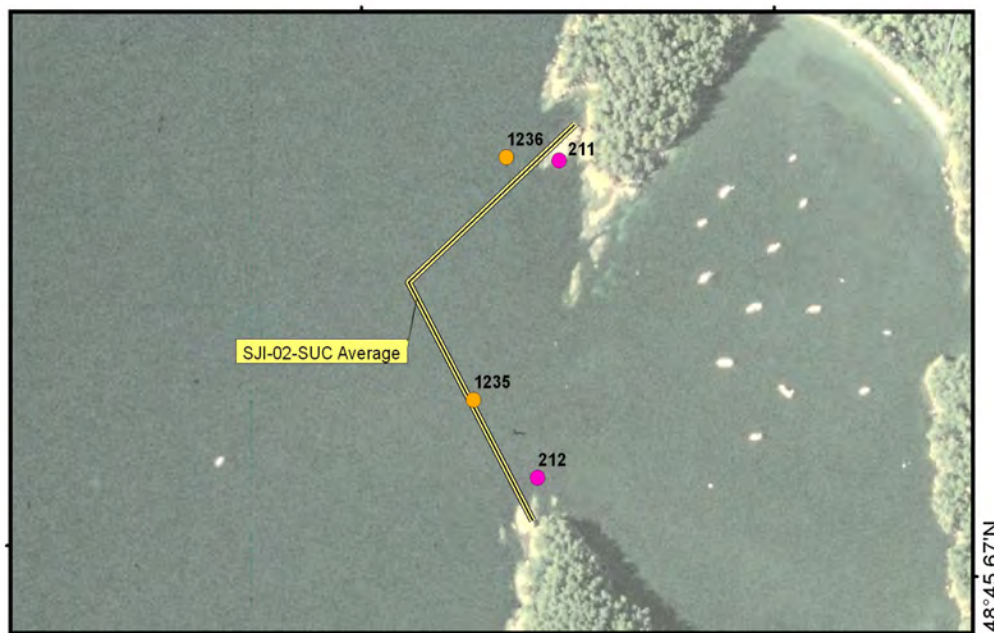
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 45.805' / W 122° 55.286', Sector Map SJI-1
Strategy Objective:	Exclusion - Keep oil out of bay
Implementation:	Deploy boom across entrance to Shallow Bay. Rock anchors bolts have been installed. If no upwelling use simple chevron. If strong upwelling, site requires a diamond configuration of boom, with upwell zone in center. With strong upwelling takes about 3 hours. Must be tended.
Site Safety Note:	Shallow water
Field Notes:	Area has complex tides. If strong upwelling, site requires a diamond configuration of boom, with upwell zone in center.
Resources Targeted:	marine birds, raptors, public lands/facilities, sensitive habitat, shellfish
Fixed Anchors:	211: N 48° 45.870' / W 122° 55.170', N anchor bolt, for high tide conditions; 212: N 48° 45.710' / W 122° 55.180', S anchor bolt, for low tide conditons
Watercourse Description:	Bay, with opening that faces W,

**Suggested Equipment**

Quantity	Description
2000 ft	B2 - Contractor Boom
1 each	Boat(s)
6 each	Danforth(s) or other appropriate anchor

Suggested Personnel

2	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/16/2008

SJI

N anchor point, bolt



N 48° 45' 52.25" W 122° 55' 12.76"

E
09/16/2008

Image-1236: N anchor bolt

SJI

S anchor point, bolt



N 48° 45' 44.89" W 122° 55' 14.02"

SE
09/16/2008

Image-1235: S anchor bolt area

Site Contact Information

High Priority - contact immediate or before entering:

General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday)
Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151,
Contact San Juan County Sheriff at 360-378-4151.

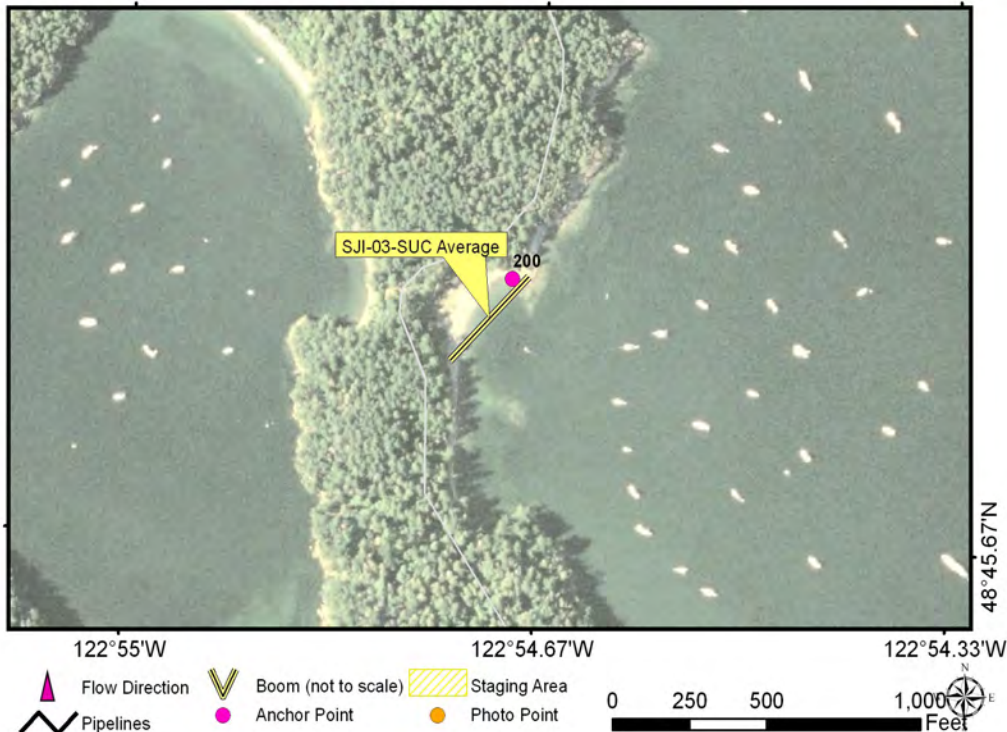
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 45.779' / W 122° 54.707', Sector Map SJI-4
Strategy Objective:	Exclusion - Keep oil out of cove.
Implementation:	Deploy boom across mouth of cove.
Field Notes:	Good cell phone coverage, should take about an hour to deploy once on site.
Resources Targeted:	public lands/facilities, sensitive habitat
Fixed Anchors:	200: N 48° 45.800' / W 122° 54.690', Water Depth 0ft, NE shoreline of cove, adjust as needed
Watercourse Description:	Cove

**Suggested Equipment**

Quantity	Description
400 ft	B2 - Contractor Boom
2 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: New - visited but not tested 09/16/2008

SJI

Cove beach

SJI

S anchor point



N 48° 45' 48.29" W 122° 54' 18.85"

N
09/16/2008

Image-1212: Cove beach



N 48° 45' 48.25" W 122° 54' 18.94"

NW
09/16/2008

Image-1210: S anchor point

Site Contact Information

High Priority - contact immediate or before entering:

General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday)

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

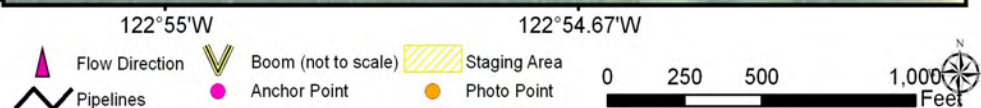
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 45.162' / W 122° 54.749', Sector Map SJI-4
Strategy Objective:	Exclusion - Keep oil out of cove
Implementation:	Deploy boom across entrance to cove. Rock anchors have been installed at the high and low tide lines on the south side of the entrance. Use mooring buoy to supplement anchors.
Site Safety Note:	Recreational boat traffic
Field Notes:	Cove has lots of moorage, so recreational boats can be in the area.
Resources Targeted:	marine birds, shellfish, raptors, public lands/facilities, sensitive habitat
Fixed Anchors:	213: N 48° 45.100' / W 122° 54.770', S anchor bolt, for high tide condtions; 214: N 48° 45.110' / W 122° 54.770', S anchor point, for low tide condtions
Watercourse Description:	Cove, bolts have been set on south side of opening, Field Visit Width ~ 900ft

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
1 each	Boat(s)

Suggested Personnel

1	Boat Operator (s)
1	Laborer (s)

Status: Visited and Not Tested 09/16/2008

SJI

N anchor point



N 48° 45' 11.57" W 122° 54' 41.89"

SE
09/16/2008

Image-1233: N anchor point, use boulders.

SJI

Area of S bolt anchor point, on flat



N 48° 45' 11.58" W 122° 54' 47.38"

S
09/16/2008

Image-1234: S anchor point, bolt on flat

Site Contact Information

High Priority - contact immediate or before entering:

General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday)

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

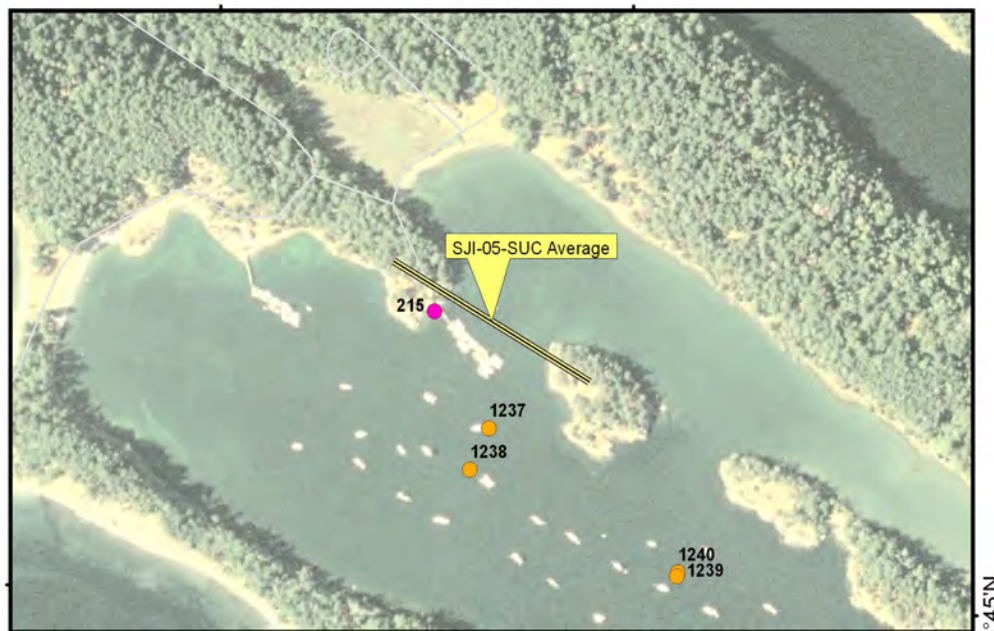
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 45.140' / W 122° 54.107', Sector Map SJI-4
Strategy Objective:	Exclusion - Keep oil from moving between Mud and Fossil Bays
Implementation:	Only needed if oil has reached the upper part of either Bay. Deploy boom across northwest entrance to bay, from the dock on Sucia Island to Herndon Island.
Site Safety Note:	Submerged rocks, recreational boat traffic
Field Notes:	Only needed if oil reaches upper part of either Bay, Bathrooms and drinking water available at park.
Resources Targeted:	marine birds, raptors, public lands/facilities, raptors, sensitive habitat
Fixed Anchors:	215: N 48° 45.145' / W 122° 54.154', Water Depth 0ft, N anchor point, rocks near base of dock, adjust as needed
Watercourse Description:	Bay, long narrow bay with side openings to other bay



Flow Direction
 Boom (not to scale)
 Staging Area
 Anchor Point
 Photo Point
 Pipelines

0 250 500 1,000 Feet

Suggested Equipment

Quantity	Description
400 ft	B2 - Contractor Boom
1 each	Boat(s)
1 each	Danforth(s) or other appropriate anchor
2 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/16/2008

SJI

N anchor point



N 48° 45' 03.97" W 122° 54' 07.30"

S
09/16/2008

Image-1238: N anchor point

SJI

S anchor point



N 48° 45' 05.23" W 122° 54' 06.44"

S
09/16/2008

Image-1237: S anchor point

Site Contact Information

High Priority - contact immediate or before entering:

General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday)
Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151,
Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 45.077' / W 122° 53.938', Sector Map SJI-4
Strategy Objective:	Exclusion - Keep oil from moving between bays
Implementation:	Not needed if oil is not threatening upper sections of bays. Deploy boom across southeast entrance to bay, from Herndon Island to Wiggins Head.
Site Safety Note:	Submerged rocks, recreational boat traffic
Field Notes:	Not needed if oil is not in upper reaches of bays, bathrooms and water at park.
Resources Targeted:	marine birds, raptors, public lands/facilities, sensitive habitat, shellfish
Fixed Anchors:	216: N 48° 45.085' / W 122° 53.982', Water Depth 0ft, Wiggins Head shoreline anchor point, adjust as needed
Watercourse Description:	Bay, long narrow bay with side openings

**Suggested Equipment**

Quantity	Description
300 ft	B2 - Contractor Boom
1 each	Boat(s)
6 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/16/2008

SJI

N anchor point



N 48° 45' 01.07" W 122° 53' 57.08"

S
09/16/2008

Image-1240: N anchor point

SJI

S anchor point



N 48° 45' 00.95" W 122° 53' 57.13"

S
09/16/2008

Image-1239: S anchor point

Site Contact Information

High Priority - contact immediate or before entering:

General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday)
Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151,
Contact San Juan County Sheriff at 360-378-4151.

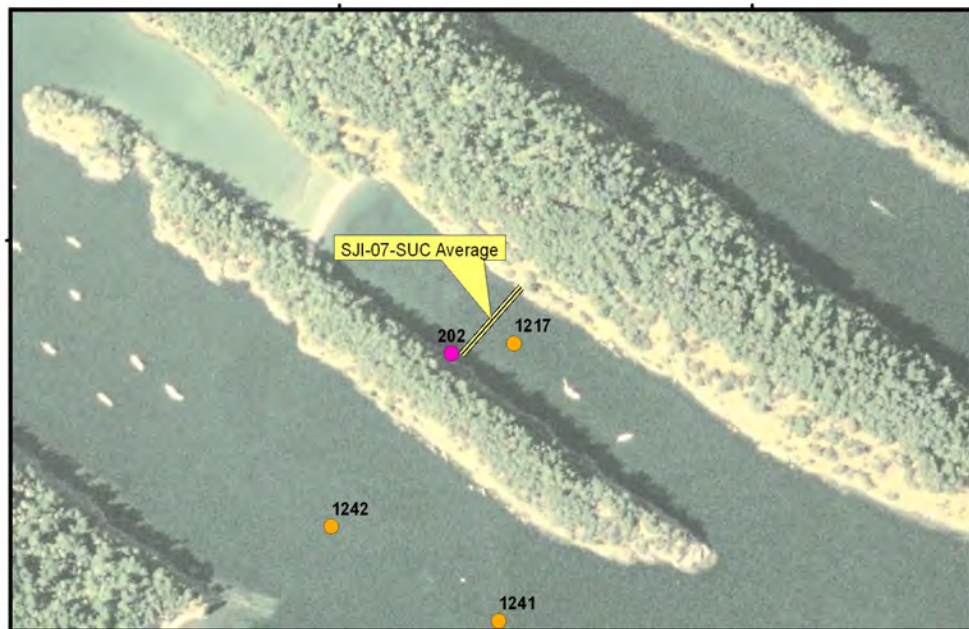
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 44.967' / W 122° 53.536', Sector Map SJI-4
Strategy Objective:	Exclusion - Keep oil out of Snoring Bay
Implementation:	Deploy boom across opening, may need to use a chevron depending on winds and currents. Adjust anchor points based on real-time conditions, but boom should be placed to reduce impact to as much shoreline as possible.
Site Safety Note:	shallow - 8 feet deep at about 150 yards from shore.
Resources Targeted:	marine birds, shellfish, public lands/facilities, raptors, sensitive habitat
Fixed Anchors:	202: N 48° 44.951' / W 122° 53.568', SW anchor point, adjust as needed
Watercourse Description:	Bay, narrow bay, Field Visit Width ~ 300ft



Suggested Equipment

Quantity	Description
400 ft	B2 - Contractor Boom
3 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: New - visited but not tested 09/16/2008

SJI

E anchor point



N 48° 44' 57.43" W 122° 53' 31.08"

SE
09/16/2008

Image-1217: NE anchor point

No Image Available

Site Contact Information

High Priority - contact immediate or before entering:

General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday)
Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151,
Contact San Juan County Sheriff at 360-378-4151.

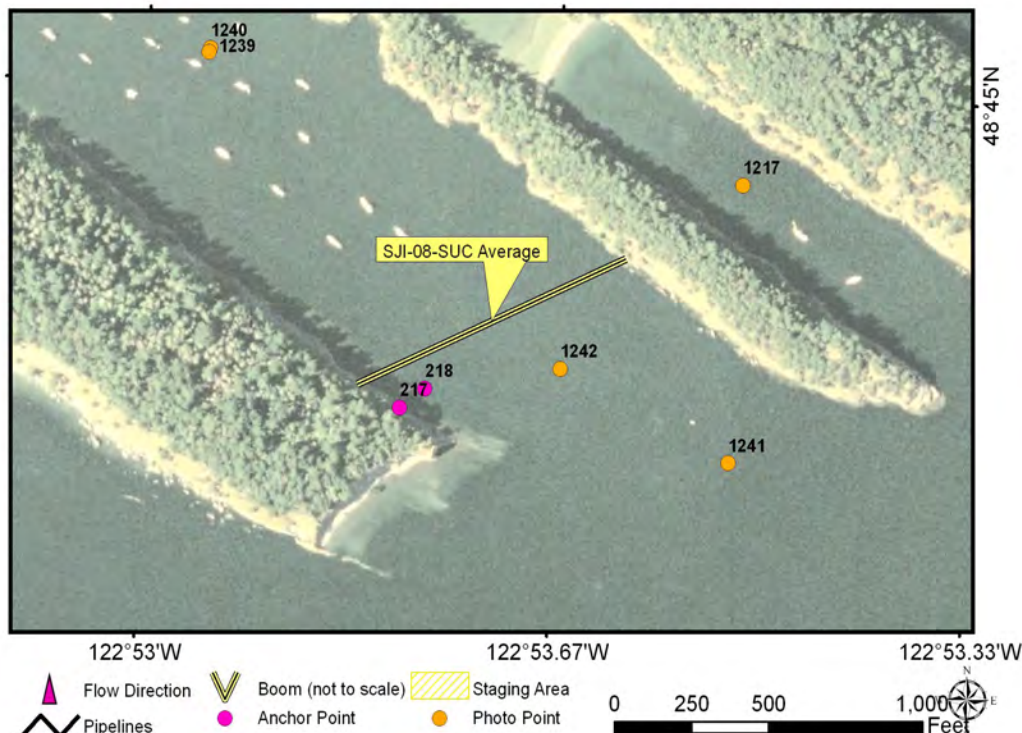
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 44.884' / W 122° 53.718', Sector Map SJI-4
Strategy Objective:	Exclusion - Close off entrance to bay
Implementation:	Deploy boom across entrance to bay. Rock anchors have been installed at the high and low tide lines on the west side of the entrance. If not feasible, deploy SJI- 05-SUC and SJI-06-SUC instead.
Site Safety Note:	Recreational boat traffic
Field Notes:	If not feasible, deploy 05-SUC and 06-SUC instead.
Resources Targeted:	marine birds, shellfish, raptors, public lands/facilities, sensitive habitat
Fixed Anchors:	217: N 48° 44.840' / W 122° 53.790', Water Depth 0ft, W anchor bolt, for high tide conditions; 218: N 48° 44.850' / W 122° 53.770', Water Depth 0ft, W anchor bolt for low tide conditions
Watercourse Description:	Bay, long narrow bay with side openings to another bay

**Suggested Equipment**

Quantity	Description
1200 ft	B2 - Contractor Boom
1 each	Boat(s)

Suggested Personnel

2	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/16/2008

SJI

N anchor point

SJI

S anchor point



N 48° 44' 49.03" W 122° 53' 31.43"

SW
09/16/2008

Image-1241: NE anchor point at mouth of Fossil Bay



N 48° 44' 51.72" W 122° 53' 39.67"

S
09/16/2008

Image-1242: SW anchor bolt, both low and high tide bolts here

Site Contact Information

High Priority - contact immediate or before entering:

General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday)

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 42.130' / W 123° 0.467', Sector Map SJI-1
Strategy Objective:	Exclusion - Keep oil out of N cove.
Implementation:	Deploy boom from the small rocky point N of the cove at an angle to the SW to the point of the peninsula in the middle of the bay.
Site Safety Note:	Getting to Waldron Island can be dangerous due to President's Channel which can be very rough in high winds.
Field Notes:	Weak cell phone coverage, shoreline is private property.
Resources Targeted:	sensitive habitat
Fixed Anchors:	305: N 48° 42.187' / W 123° 0.408', N anchor area, adjust as needed
Watercourse Description:	Cove, most northern cove

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
1 each	Boat(s)
2 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/16/2008

SJI

N anchor point



N 48° 42' 03.30" W 123° 00' 22.89"

SW
09/16/2008

Image-1280: N anchor point

SJI

Center rock anchor point



N 48° 42' 07.65" W 123° 00' 28.38"

SW
09/16/2008

Image-1281: S anchor point

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 41.991' / W 123° 0.497', Sector Map SJI-1
Strategy Objective:	Exclusion - Keep oil out of cove.
Implementation:	Deploy boom from N middle point to the S. Adjust angle based on real-time conditions.
Site Safety Note:	Recreational boat traffic. Getting to Waldron Island can be dangerous due to President's Channel which can be very rough in high winds.
Field Notes:	Cell phone coverage
Resources Targeted:	sensitive habitat
Fixed Anchors:	245: N 48° 42.054' / W 123° 0.536', N anchor point on point which divides bay into two coves, adjust as needed
Watercourse Description:	Cove, s cove

**Suggested Equipment**

Quantity	Description
900 ft	B2 - Contractor Boom
1 each	Boat(s)
2 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: New - visited but not tested 09/16/2008

SJI

Center rock anchor point



N 48° 42' 07.65" W 123° 00' 28.38"

SW
09/16/2008

Image-1283: N anchor point

SJI

S anchor point



N 48° 42' 02.82" W 123° 00' 26.77"

S
09/16/2008

Image-1284: S anchor point

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

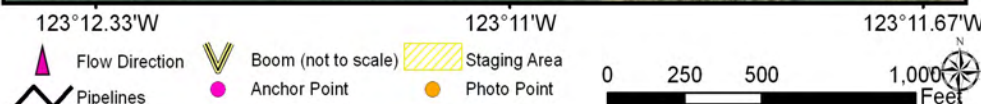
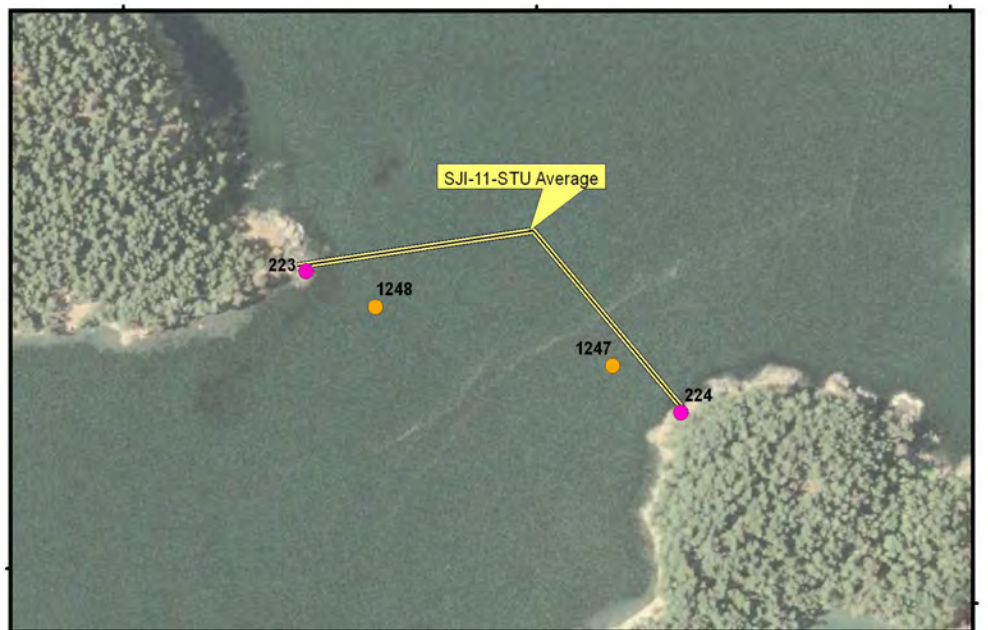
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 41.178' / W 123° 12.014', Sector Map SJI-1
Strategy Objective:	Exclusion - Keep oil out of harbor.
Implementation:	Deploy boom in a chevron configuration, from Charles Point to Satellite Island. The apex of the chevron can point to the north or south, depending on conditions and whichever is most feasible. Use extreme caution, numerous unmarked shallow rock reefs.
Site Safety Note:	Submerged rocks, recreational boat traffic
Field Notes:	Spotty cell phone coverage, takes about 2 hours to deploy
Resources Targeted:	marine birds, public lands/facilities, sensitive habitat, special protection area
Fixed Anchors:	223: N 48° 41.156' / W 123° 12.179', shoreline anchor point, Charles Point - adjust as needed; 224: N 48° 41.092' / W 123° 11.873', shoreline anchor point, Satellite Island
Watercourse Description:	Bay, has two openings

**Suggested Equipment**

Quantity	Description
1600 ft	B2 - Contractor Boom
2 each	Boat(s)
6 each	Danforth(s) or other appropriate anchor
8 each	Stake(s)

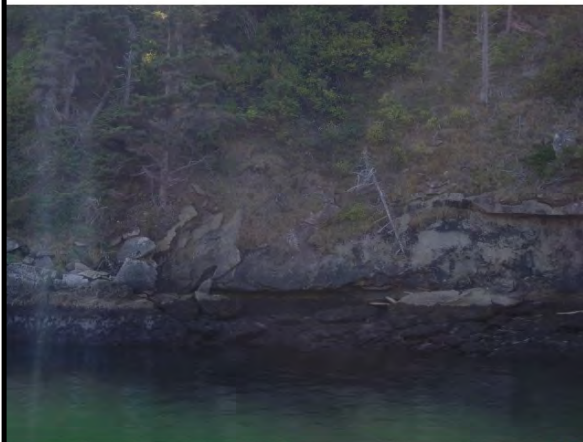
Suggested Personnel

2	Boat Operator (s)
4	Laborer (s)

Status: Visited and Not Tested 09/16/2008

SJI

E anchor point



N 48° 44' 55.60" W 122° 53' 27.13"

SE
09/16/2008

Image-1247: E anchor point

SJI

E anchor point



N 48° 41' 08.34" W 123° 12' 07.32"

SW
09/16/2008

Image-1248: W anchor point, Charles Point

Site Contact Information

High Priority - contact immediate or before entering:

General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday)

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

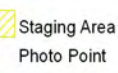
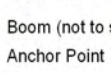
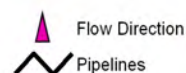
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 40.558' / W 123° 11.199', Sector Map SJI-1
Strategy Objective:	Exclusion - Keep oil out of harbor.
Implementation:	Deploy boom from the southern tip of Satellite Island to the closest point on Stuart Island. Use extreme caution, numerous unmarked shallow rock reefs. If conditions allow place the boom farther out, to do so will require an additional 400 ft. of boom.
Site Safety Note:	Submerged rocks, recreational boat traffic
Field Notes:	Spotty cell phone coverage, takes about 2 hours to deploy once on-site.
Resources Targeted:	marine birds, public lands/facilities, sensitive habitat, special protection area
Fixed Anchors:	225: N 48° 40.648' / W 123° 11.227', shoreline anchor point, Satellite Island, adjust as needed; 226: N 48° 40.535' / W 123° 11.350', shoreline anchor point, Stuart Island, adjust as needed
Watercourse Description:	Bay, with two openings



0 250 500

1,000 Feet

Suggested Equipment

Quantity	Description
1200 ft	B2 - Contractor Boom
1 each	Boat(s)
4 each	Danforth(s) or other appropriate anchor
8 each	Stake(s)

Suggested Personnel

2	Boat Operator (s)
4	Laborer (s)

Status: Visited and Not Tested 09/16/2008

SJI

E anchor point



09/16/2008

Image-1250: E anchor point

SJI

W anchor point



E

09/16/2008

N 48° 40' 33.87" W 123° 11' 17.87"

Image-1249: SW anchor point on Stuart Island

Site Contact Information

High Priority - contact immediate or before entering:

General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday)

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

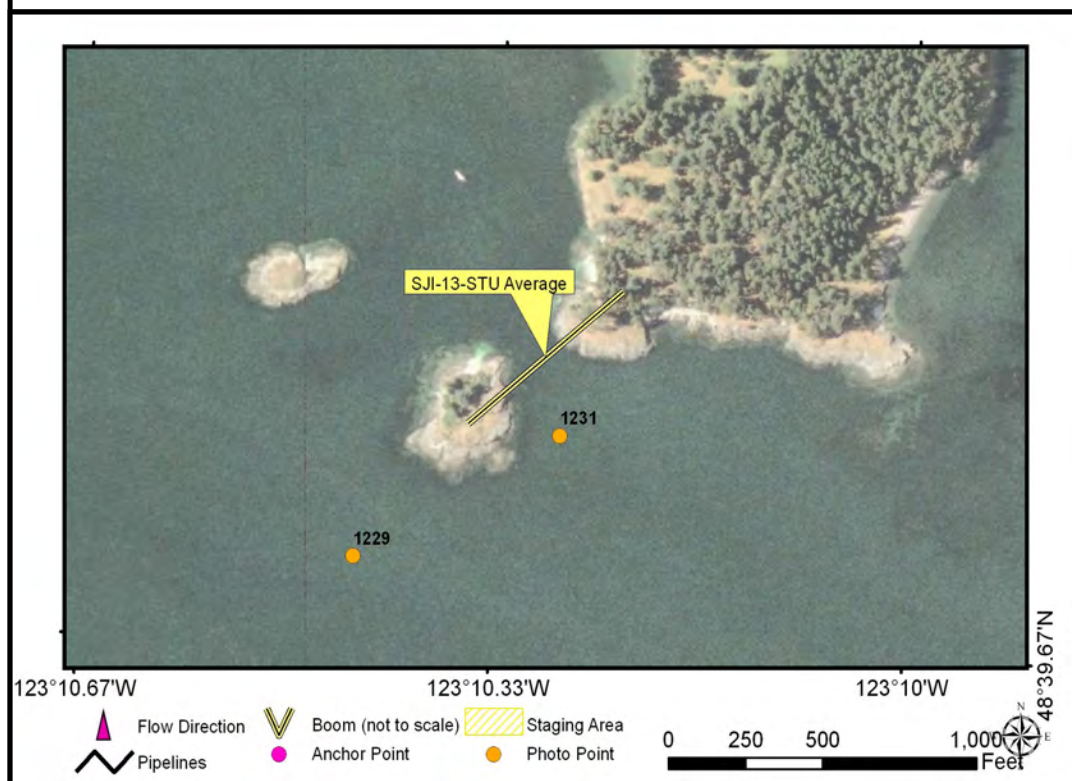
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 39.814' / W 123° 10.294', Sector Map SJI-1
Strategy Objective:	Exclusion - Keep oil out of harbor.
Implementation:	Deploy boom from the east side of Gossip Island, east to Stuart Island. The anchor point on the NE side of Gossip Island is very difficult to do. Might be best to wedge anchor or pins into cracks along rocks. Bring extra line and anchors.
Field Notes:	The anchor point on the NE side of Gossip Island is very difficult to do. Might be best to wedge anchor into cracks along rocks. Bring extra line and anchors.
Resources Targeted:	shorebirds, marine birds, shellfish, public lands/facilities, sensitive habitat, special protection area
Fixed Anchors:	209: S 123° 10.264' / W 123° 10.264', Water Depth 0ft, E shoreline anchor point on Stuart Island, adjust as needed
Watercourse Description:	Bay, ,

**Suggested Equipment**

Quantity	Description
50 ft	1/2 poly line
300 ft	B2 - Contractor Boom
1 each	Boat(s)
3 each	Danforth(s) or other appropriate anchor
3 each	Shoreline Pin(s)

Suggested Personnel

1	Boat Operator (s)
1	Laborer (s)

Status: Visited and Not Tested 09/16/2008

SJI

W anchor point



N 48° 39' 46.48" W 123° 10' 16.84"

S
09/16/2008

Image-1231: E side of Gossip Island, hard to anchor to.

No Image Available

Site Contact Information

High Priority - contact immediate or before entering:

General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday)
Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151,
Contact San Juan County Sheriff at 360-378-4151.

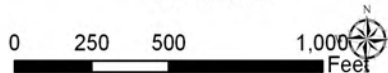
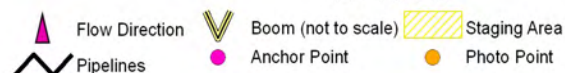
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 39.706' / W 123° 10.594', Sector Map SJI-1
Strategy Objective:	Exclusion - Keep oil out of harbor.
Implementation:	Deploy boom in a chevron configuration, from the west side of Gossip Island, west to Stuart Island. Use mooring bouy to help anchoring on west side. The apex of the chevron can point to the north or south, depending on conditions. Last test deployment took 3 hours.
Resources Targeted:	shorebirds, marine birds, shellfish, public lands/facilities, sensitive habitat, special protection area
Fixed Anchors:	208: N 48° 39.764' / W 123° 10.381', Water Depth 0ft, SE shoreline Gossip Island, adjust as needed
Watercourse Description:	Bay, with relatively wide entrance, Gossip Island breaks entrance into two gaps

**Suggested Equipment**

Quantity	Description
2000 ft	B2 - Contractor Boom
1 each	Boat(s)
6 each	Danforth(s) or other appropriate anchor
8 each	Stake(s)
1 each	Work Boat(s)

Suggested Personnel

2	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/16/2008

SJI

Center rock anchor point



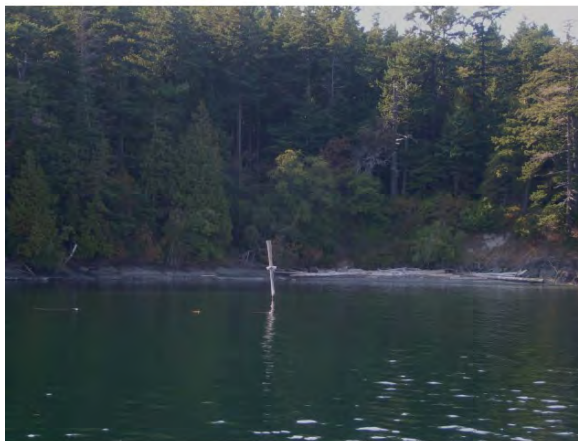
N 48° 39' 42.64" W 123° 10' 26.65"

SE
09/16/2008

Image-1229: SE anchor point, Gossip Island

SJI

W anchor point



N 48° 39' 45.03" W 123° 10' 42.49"

N
09/16/2008

Image-1230: W anchor point

Site Contact Information

High Priority - contact immediate or before entering:

General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday)
Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151,
Contact San Juan County Sheriff at 360-378-4151.

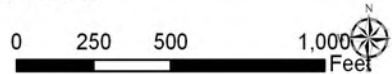
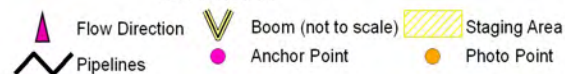
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 37.897' / W 122° 57.460', Sector Map SJI-5
Strategy Objective:	Exclusion - Keep oil out of creek, and reduce impact to cove.
Implementation:	Deploy boom in a chevron, use shorestakes and anchor. Should be able to deploy from road, but a Jon boat will be needed to set anchor.
Site Safety Note:	Take traffic safety precautions.
Field Notes:	Good cell phone coverage - site can be accessed by road or water. A Jon boat will be needed to set the apex anchor.
Resources Targeted:	salmonids (anadromous)
Fixed Anchors:	197: N 48° 37.913' / W 122° 57.439', Water Depth 0ft, E shore anchor point, adjust as needed
Watercourse Description:	Creek, with tidal influence

**Suggested Equipment**

Quantity	Description
200 ft	B2 - Contractor Boom
1 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
1	Laborer (s)

Status: Visited and Not Tested 09/16/2008

SJI

Crow Valley Creek mouth



N 48° 37' 48.76" W 122° 57' 30.34"

SE
09/16/2008

Image-1203: Crow Valley Creek mouth

SJI

Kiest Sound marina



N 48° 37' 34.39" W 122° 57' 41.47"

N
09/16/2008

Image-1202: Westsound Marina

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

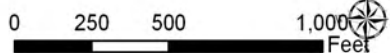
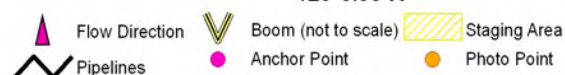
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 37.477' / W 123° 0.220', Sector Map SJI-2
Strategy Objective:	Collection, Exclusion - Keep oil out of inner harbor/ lagoon, collect with vac truck at road.
Implementation:	Deploy boom from the west side of the harbor just south of the bridge at an angle to the southeast to the east side of the harbor. Collect oil with a vac truck from the road on the west side of the harbor.
Site Safety Note:	Shallow water, recreational boat traffic
Field Notes:	Deer Harbor Boat Works stores an "Ecology Spill Trailer", Good cell phone coverage, boat launches, fuel
Resources Targeted:	waterfowl, shellfish, sensitive habitat, habitat restoration/mitigation site
Fixed Anchors:	306: N 48° 37.557' / W 123° 0.259', Shoreline anchor area, E side of bridge, adjust as needed
Watercourse Description:	Bay, upper reach has a channel on wetland

**Suggested Equipment**

Quantity	Description
800 ft	B2 - Contractor Boom
2 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)
1 each	Vac Truck(s)
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
1	Laborer (s)

Status: Visited and Not Tested 09/16/2008

SJI

E anchor point



N 48° 37' 22.21" W 123° 00' 14.05"

SE
09/16/2008

Image-1266: E anchor point, shallow water

SJI

W anchor point



N 48° 37' 22.14" W 123° 00' 14.11"

SW
09/16/2008

Image-1267: W anchor point

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 37.324' / W 123° 0.407', Sector Map SJI-2
Strategy Objective:	Exclusion - Keep oil out of the cove.
Implementation:	The west attachment point is a bolt set in the bed rock at 48 37.23 -123 00.45. The east attachment point is adjusted depending on conditions: 1) High winds/strong currents attach at NW edge of cove. 800 ft boom 2) Moderate winds/currents attach at east bank of harbor between Cayou Quay and Deer Harbor Marina. 1900 ft of boom 3) Weak winds/currents attach at east bank south of both Marinas. 2300 ft of boom.
Site Safety Note:	Recreational boat traffic, good deep water.
Field Notes:	Good cell phone coverage, multiple boat ramps in area, an 'ECY' boom trailer is stored at Deer Harbor Boat Works. Bathrooms, water, and fuel are available at Deer Harbor.
Resources Targeted:	sensitive habitat
Fixed Anchors:	227: N 48° 37.230' / W 123° 0.450', West anchor point, bolt set in bedrock
Watercourse Description:	Bay, with two coves and marinas

**Suggested Equipment**

Quantity	Description
2300 ft	B2 - Contractor Boom
2 each	Boat(s)
6 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)

Suggested Personnel

2	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/16/2008

SJI

E anchor point

SJI

W anchor point, bolt



N 48° 37' 15.42" W 123° 00' 23.71"

0°
09/16/2008

Image-1252: One of three possible E anchor points



N 48° 37' 13.80" W 123° 00' 25.54"

SW
09/16/2008

Image-1251: W anchor bolt set in bedrock

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 37.293' / W 123° 8.566', Sector Map SJI-2
Strategy Objective:	Exclusion - Keep oil out of Neil Bay.
Implementation:	Deploy boom from point on the south shore of the bay entrance across to the north shore. On the S side go to E end of gravel beach, and anchor to large boulder, extend to N use any convenient pier on N side.
Site Safety Note:	Shallow waters
Field Notes:	maybe able to collect on S side of near cement ramp.
Resources Targeted:	waterfowl, marine birds, sensitive habitat
Fixed Anchors:	291: N 48° 37.347' / W 123° 8.561', N anchor area
Watercourse Description:	Bay, relatively narrow

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
1 each	Boat(s)
2 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/17/2008

SJI

S anchor point



N 48° 37' 18.03" W 123° 08' 28.87"

S
09/17/2008

Image-1331: N anchor area

SJI

N anchor point



N 48° 37' 18.05" W 123° 08' 28.89"

NW
09/17/2008

Image-1332: S anchor area

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

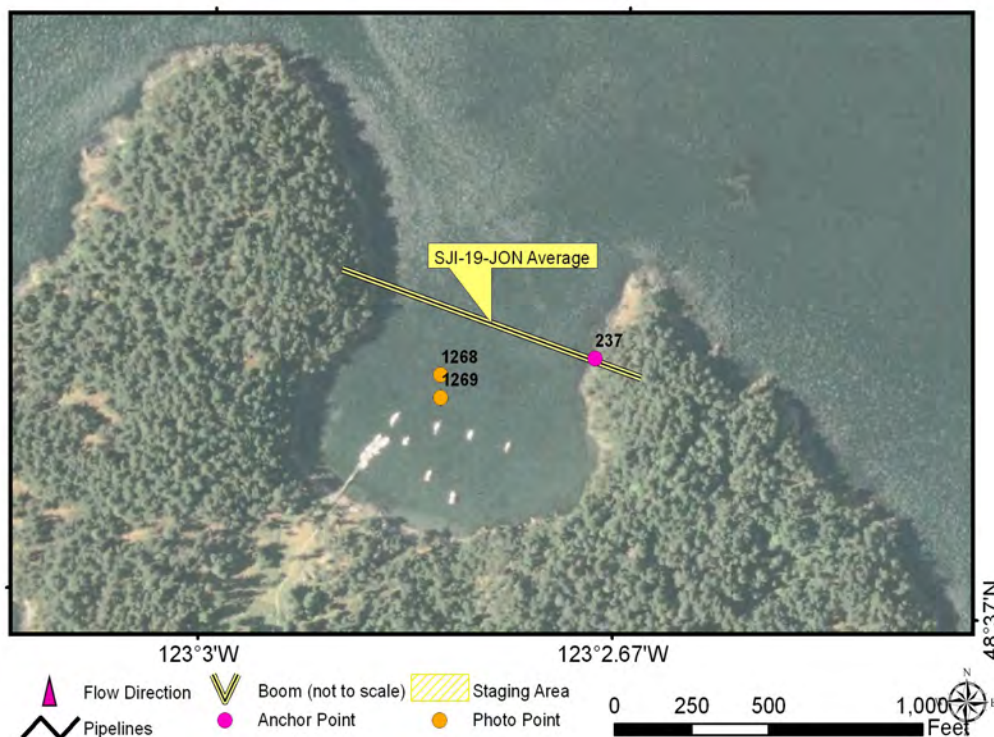
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 37.141' / W 123° 2.771', Sector Map SJI-2
Strategy Objective:	Exclusion - Keep oil out of the cove.
Implementation:	Deploy boom across the narrowest point of the entrance to the cove on the north side of the island. Attach boom to shore and anchor to maintain position.
Resources Targeted:	public lands/facilities, sensitive habitat
Fixed Anchors:	237: N 48° 37.126' / W 123° 2.687', Shoreline anchor point on E side of cove opening, adjust as needed
Watercourse Description:	Cove, on N side of Jones Island

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
1 each	Boat(s)
3 each	Danforth(s) or other appropriate anchor
8 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/16/2008

SJI

E anchor point, drive stakes



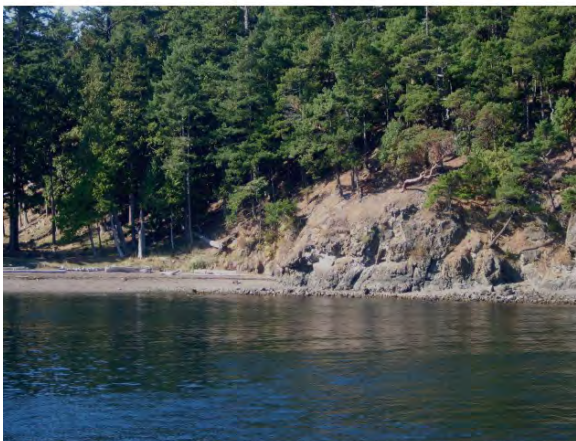
N 48° 37' 06.22" W 123° 02' 48.60"

S
09/16/2008

Image-1269: E anchor point

SJI

W anchor point



N 48° 37' 06.92" W 123° 02' 48.64"

S
09/16/2008

Image-1268: W anchor point

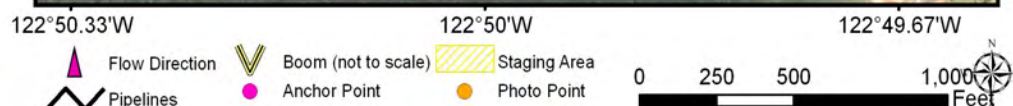
Site Contact Information

High Priority - contact immediate
or before entering:
General Number, Washington
State Parks, (W) 360-902-8844,
(8 a.m. - 5 p.m. Monday - Friday)

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 37.055' / W 122° 49.996', Sector Map SJI-5
Strategy Objective:	Exclusion, Collection - Keep oil out of bay.
Implementation:	Deploy boom in chevron from the dock on the west side to the Johnston's property on the east side. This location keeps the boom in water even at low tide, most of bay becomes a mudflat at low tide. Requires 24/7 tending.
Site Safety Note:	Multiple submerged rock hazards, some are exposed at +3 tides. Also aquaculture net and operations are in area.
Field Notes:	Winds coming off the mountain have more influence on oil movement than tides. IOSA has contact information for 'eyes' on the water and access for one of the attachment points. NO cell phone coverage.
Resources Targeted:	waterfowl, baitfish, salmonids (anadromous), marine birds, shellfish, sensitive habitat
Fixed Anchors:	259: N 48° 37.049' / W 122° 49.842', shoreline anchor point, adjust as needed
Watercourse Description:	Bay, which can have strong winds

**Suggested Equipment**

Quantity	Description
1400 ft	B2 - Contractor Boom
2 each	Boat(s)
10 each	Danforth(s) or other appropriate anchor

Suggested Personnel

2	Boat Operator (s)
4	Laborer (s)

Status: Visited and Not Tested 09/15/2008

SJI

Doe Bay dock, site for collection Vs.



09/15/2008

Image-1286: Doe Bay dock

SJI

Middle of bay, note rocks.



N 48° 37' 01.98" W 122° 49' 58.69"

NE

09/15/2008

Image-1287: Rocks in middle of bay - DANGER

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 36.672' / W 123° 2.614', Sector Map SJI-2
Strategy Objective:	Exclusion - Keep oil out of the cove.
Implementation:	Deploy boom to keep oil out of both small coves on the south side of the island. Very exposed. If unable to put across opening to both coves, pull back and try just the cove to the west.
Site Safety Note:	Strong winds may make deployment unsafe
Field Notes:	Spotted cell phone coverage, this site is strongly influenced by the weather, strong winds may make deployment unsafe and ineffective.
Resources Targeted:	public lands/facilities, sensitive habitat
Fixed Anchors:	238: N 48° 36.672' / W 123° 2.771', W shoreline anchor point, adjust as needed
Watercourse Description:	Cove, two coves with common opening

**Suggested Equipment**

Quantity	Description
1500 ft	B2 - Contractor Boom
3 each	Danforth(s) or other appropriate anchor
8 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/16/2008

SJI

Area of 'bolt' anchor point



N 48° 36' 37.55" W 123° 02' 32.72"

SE
09/16/2008

SJI

W anchor point



N 48° 36' 36.00" W 123° 02' 42.54"

SW
09/16/2008

Image-1271: E anchor bolt. Or use shoreline stakes, boulders

Image-1270: W anchor point

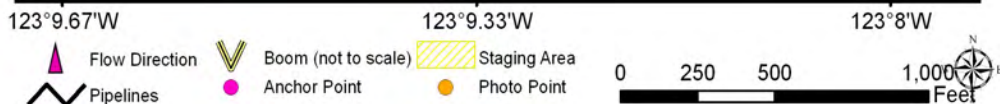
Site Contact Information

High Priority - contact immediate
or before entering:
General Number, Washington
State Parks, (W) 360-902-8844,
(8 a.m. - 5 p.m. Monday - Friday)

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 36.436' / W 123° 9.324', Sector Map SJI-2
Strategy Objective:	Exclusion - Keep oil out of tidal marsh.
Implementation:	Deploy boom across the entrance to the tidal marsh south of the Roche Harbor Marina.
Site Safety Note:	Recreational boat traffic, opening closed at +3 tide.
Field Notes:	Has cell phone coverage, fuel, and bathrooms. There is a boat ramp right next to the site. 1100 ft of boom stored at Roche Harbor
Resources Targeted:	sensitive habitat
Fixed Anchors:	289: N 48° 36.421' / W 123° 9.303', E anchor area, adjust as needed
Watercourse Description:	Saltmarsh

**Suggested Equipment**

Quantity	Description
300 ft	B2 - Contractor Boom
4 each	Stake(s)
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
1	Laborer (s)

Status: Visited and Not Tested 09/17/2008

SJI

E anchor point



N 48° 36' 32.52" W 123° 09' 21.49"

SE
09/17/2008

Image-1328: Boat launch and E anchor area

SJI

Lagoon mouth



N 48° 36' 31.01" W 123° 09' 19.29"

S
09/17/2008

Image-1327: Lagoon mouth, view from water

Site Contact Information

Responsible party or alternate contact:
Roache Harbor, (W) 800 586-3590, marina

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 36.299' / W 123° 10.615', Sector Map SJI-2
Strategy Objective:	Exclusion - Keep oil out of bay and salt marsh at end of bay.
Implementation:	Deploy boom in a chevron configuration at the entrance to the bay.
Site Safety Note:	Recreational boat traffic
Field Notes:	Has cell phone coverage
Resources Targeted:	marine birds, shellfish, sensitive habitat
Fixed Anchors:	290: N 48° 36.324' / W 123° 10.725', N anchor area
Watercourse Description:	Bay, wide and shallow with marsh at end

**Suggested Equipment**

Quantity	Description
1400 ft	B2 - Contractor Boom
1 each	Boat(s)
4 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)
Suggested Personnel	
1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/17/2008

SJI

NW anchor point



N 48° 36' 17.45" W 123° 10' 37.99"

W
09/17/2008

Image-1330: N anchor area

SJI

S anchor point



N 48° 36' 17.32" W 123° 10' 38.24"

S
09/17/2008

Image-1329: S anchor area

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.







Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 35.952' / W 123° 9.862', Sector Map SJI-2
Strategy Objective:	Exclusion - Keep oil out of marsh.
Implementation:	Deploy boom in a chevron to prevent oil from moving into the marsh. Adjust angle based on flow.
Site Safety Note:	shallow waters
Field Notes:	Good cell phone coverage, should take about 30 minutes once on site.
Resources Targeted:	sensitive habitat
Fixed Anchors:	205: N 48° 35.943' / W 123° 9.802', Water Depth 0ft, S shoreline anchor point
Watercourse Description:	Estuaries, with small channel, moves with seasons



 Flow Direction
 Boom (not to scale)
 Staging Area
 Anchor Point
 Photo Point
 Pipelines

123°10'W 123°9.67'W
 0 250 500 1,000
 Feet

Suggested Equipment

Quantity	Description
300 ft	B2 - Contractor Boom
1 each	Boat(s)
4 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: New - visited but not tested 09/18/2008



Image-1222: Overview of N marsh.

No Image Available

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 35.843' / W 123° 10.067', Sector Map SJI-2
Strategy Objective:	Exclusion - Keep oil out of marsh.
Implementation:	Deploy boom across the opening to the marsh. Should be able to set stakes in shore, if needed also place Danforth in middle of boom.
Site Safety Note:	shallow waters
Staging Area:	Roche Harbor, SJI-22-SJI-staging
Field Notes:	Good cell phone coverage, should take about 30 minutes once on site.
Resources Targeted:	sensitive habitat
Fixed Anchors:	206: N 48° 35.840' / W 123° 10.126', Water Depth 0ft, shoreline anchor point, adjust as needed
Watercourse Description:	Saltmarsh

**Suggested Equipment**

Quantity	Description
200 ft	B2 - Contractor Boom
1 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: New - visited but not tested 09/17/2008

SJI

E anchor point

SJI

W anchor point



N 48° 35' 49.59" W 123° 10' 03.54"

S
09/17/2008

Image-1226: E anchor point



N 48° 35' 52.64" W 123° 10' 04.33"

SW
09/17/2008

Image-1225: W anchor point

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 35.834' / W 122° 56.223', Sector Map SJI-5
Strategy Objective:	Exclusion - Keep oil out of Marina and creeks
Implementation:	Deploy boom across the gap between the breakwater and the SE bank, adjust angle based on currents. Note: at low tide, area is muddy.
Site Safety Note:	Ferry Traffic
Field Notes:	At low tide, area is mud-flat, good cell phone coverage, should take about 30 minutes to deploy.
Resources Targeted:	salmonids (anadromous)
Fixed Anchors:	199: N 48° 35.838' / W 122° 56.231', Water Depth 0ft, end of break water, adjust as needed
Watercourse Description:	Cove, with marina, fed by small creeks



Suggested Equipment

Quantity	Description
300 ft	B2 - Contractor Boom
4 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
1	Laborer (s)

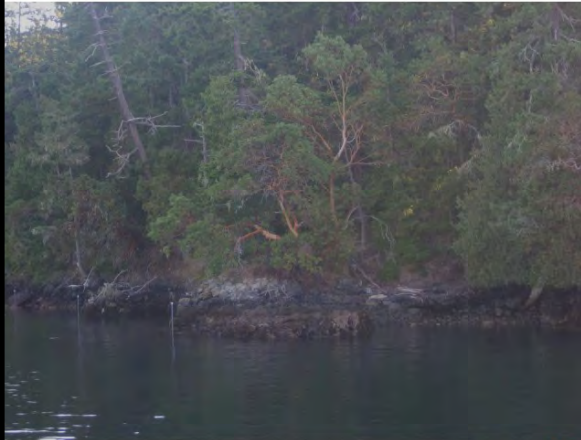
Status: New - visited but not tested 09/16/2008

SJI

E anchor point

SJI

W anchor point



N 48° 35' 49.20" W 122° 56' 16.30"

SE
09/16/2008

Image-1208: E anchor point

N 48° 35' 49.43" W 122° 56' 15.24"

SE
09/16/2008

Image-1207: W anchor point

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.

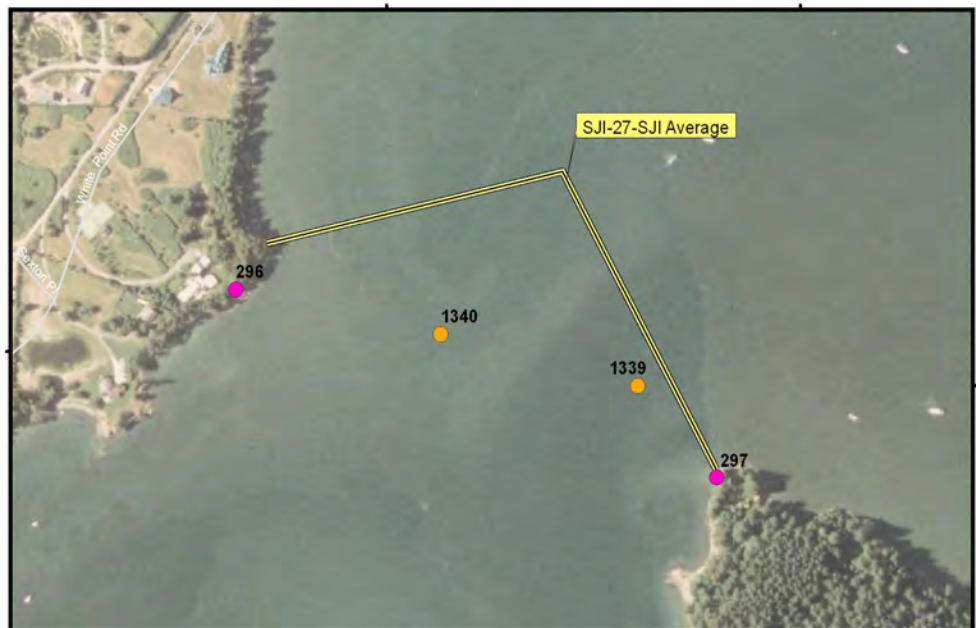
Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 35.764' / W 123° 9.542', Sector Map SJI-2
Strategy Objective:	Collection, Exclusion - Keep oil out of bay.
Implementation:	Deploy boom in a chevron configuration at the entrance to the bay from the north tip of Bell Point to the northeast shore of White Point. Deploy with the apex pointing into Westcott Bay, and if oil present, collect oil at apex with a skimmer during flood tide. High priority site.
Site Safety Note:	Bay is relatively shallow
Field Notes:	Westcott Bay Sea Farms has a private dock, ISOA has contact information.
Resources Targeted:	waterfowl, baitfish, marine birds, shellfish, public lands/facilities, sensitive habitat
Fixed Anchors:	296: N 48° 35.702' / W 123° 9.781', W anchor area; 297: N 48° 35.617' / W 123° 9.389', E anchor area
Watercourse Description:	Bay, with multiple side coves

**Suggested Equipment**

Quantity	Description
2300 ft	B2 - Contractor Boom
2 each	Boat(s)
6 each	Danforth(s) or other appropriate anchor
8 each	Stake(s)
1 each	Universal Skimmer(s)

Suggested Personnel

2	Boat Operator (s)
4	Laborer (s)

Status: Visited and Not Tested 09/17/2008

SJI

E anchor point

SJI

W anchor point



N 48° 35' 39.67" W 123° 09' 27.28"

SE
09/17/2008

Image-1339: E anchor area



N 48° 35' 41.02" W 123° 09' 36.88"

W
09/17/2008

Image-1340: W anchor point

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

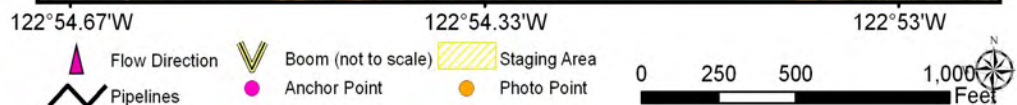
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 35.690' / W 122° 54.298', Sector Map SJI-6
Strategy Objective:	Exclusion - Keep oil out of harbor
Implementation:	Deploy in chevron across narrow opening, adjust angle based on currents and winds.
Site Safety Note:	Submerged rocks
Field Notes:	Good cell phone coverage, weak tidal push.
Resources Targeted:	salmonids (anadromous)
Fixed Anchors:	201: N 48° 35.724' / W 122° 54.271', Water Depth 0ft, E shoreline anchor point, adjust as needed
Watercourse Description:	Bay, has relatively narrow opening, Field Visit Width ~ 400ft

**Suggested Equipment**

Quantity	Description
500 ft	B2 - Contractor Boom
1 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: New - visited but not tested 09/16/2008

SJI

E anchor point



N 48° 35' 37.44" W 122° 54' 12.96"

SE
09/16/2008

Image-1214: E anchor point

SJI

W anchor point



N 48° 35' 40.35" W 122° 54' 16.47"

SW
09/16/2008

Image-1213: W anchor point

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 35.447' / W 123° 9.994', Sector Map SJI-2
Strategy Objective:	Collection, Deflection - Keep oil out of Westcott and Garrison Bays.
Implementation:	One of three open water chevrons designed to concentrate oil into middle of channel for possible open water collection with skimmer. Chevron consists of 2 400foot legs at about a 35 degree angle. Requires 24/7 tending to adjust and collect oil. Adjust as needed based on real time conditions.
Site Safety Note:	Recreational boat traffic
Field Notes:	One of three open water chevrons designed to concentrate oil into middle of channel.
Resources Targeted:	waterfowl, baitfish, marine birds, shellfish, public lands/facilities, sensitive habitat
Watercourse Description:	Bay

**Suggested Equipment**

Quantity	Description
800 ft	B2 - Contractor Boom
2 each	Boat(s)
3 each	Danforth(s) or other appropriate anchor
1 each	Universal Skimmer(s)

Suggested Personnel

2	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/17/2008



Image-1348: Over view shot showing 3 chevrons

No Image Available

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 35.423' / W 123° 10.058', Sector Map SJI-2
Strategy Objective:	Collection, Deflection - Keep oil out of Westcott and Garrison Bays.
Implementation:	One of three open water chevrons designed to concentrate oil into middle of channel for possible open water collection with skimmer. Chevron consists of 2 400foot legs at about a 35 degree angle. Requires 24/7 tending to adjust and collect oil. Adjust as needed based on real time conditions.
Site Safety Note:	Recreational boat traffic
Field Notes:	One of three open water chevrons designed to concentrate oil into middle of channel.
Resources Targeted:	waterfowl, baitfish, marine birds, shellfish, public lands/facilities, sensitive habitat
Watercourse Description:	Bay

**Suggested Equipment**

Quantity	Description
800 ft	B2 - Contractor Boom
2 each	Boat(s)
3 each	Danforth(s) or other appropriate anchor
1 each	Universal Skimmer(s)

Suggested Personnel

2	Boat Operator (s)
4	Laborer (s)

Status: Visited and Not Tested 09/17/2008



Image-1349: Over view shot showing 3 chevrons

No Image Available

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.






Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 35.424' / W 123° 10.139', Sector Map SJI-2
Strategy Objective:	Collection, Deflection - Keep oil out of Westcott and Garrison Bays.
Implementation:	One of three open water chevrons designed to concentrate oil into middle of channel for possible open water collection with skimmer. Chevron consists of 2 400foot legs at about a 35 degree angle. Requires 24/7 tending to adjust and collect oil. Adjust as needed based on real time conditions.
Site Safety Note:	Recreational boat traffic
Field Notes:	One of three open water chevrons designed to concentrate oil into middle of channel.
Resources Targeted:	waterfowl, baitfish, marine birds, shellfish, sensitive habitat
Watercourse Description:	Bay



 Flow Direction
  Boom (not to scale)
  Staging Area
  Anchor Point
  Photo Point

0 250 500 1,000 Feet

Suggested Equipment

Quantity	Description
800 ft	B2 - Contractor Boom
2 each	Boat(s)
3 each	Danforth(s) or other appropriate anchor
1 each	Universal Skimmer(s)

Suggested Personnel

2	Boat Operator (s)
4	Laborer (s)

Status: Visited and Not Tested 09/17/2008



Image-1347: Over view shot showing 3 chevrons

No Image Available

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

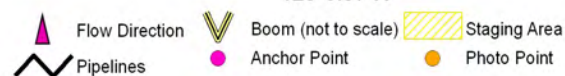
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 35.338' / W 123° 9.536', Sector Map SJI-2
Strategy Objective:	Collection, Exclusion - Keep oil out of bay.
Implementation:	Deploy boom in a chevron configuration at the entrance to the bay, from the west shore of Bell Point to the opposite shoreline to the west. Deploy with the apex pointing into Garrison Bay, and if oil present, collect at the apex with a skimmer during flood tide. Be careful to minimize disturbance to soil. High priority site.
Site Safety Note:	Very shallow towards back of bay.
Field Notes:	Spotty cell phone coverage, do not land on Guss Island.
Resources Targeted:	waterfowl, baitfish, marine birds, shellfish, public lands/facilities, sensitive habitat
Fixed Anchors:	298: N 48° 35.428' / W 123° 9.444', E shoreline anchor area; 299: N 48° 35.365' / W 123° 9.664', W shoreline anchor area
Watercourse Description:	Bay, with multiple coves

**Suggested Equipment**

Quantity	Description
1300 ft	B2 - Contractor Boom
1 each	Boat(s)
3 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/17/2008

SJI

E anchor point

SJI

W anchor point



N 48° 35' 23.64" W 123° 09' 36.12"

E
09/17/2008

Image-1341: E anchor area



N 48° 35' 23.35" W 123° 09' 36.05"

SW
09/17/2008

Image-1342: W anchor area.

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 35.305' / W 123° 10.243', Sector Map SJI-2
Strategy Objective:	Deflection - Deflect oil out into center of channel for collection
Implementation:	Deploy boom from the end of Delacombe Point to deflect the oil out to the collection strategy.
Site Safety Note:	Strong currents.
Field Notes:	Use boom to enhance currents natural tendency to divert oil into channel.
Resources Targeted:	waterfowl, baitfish, marine birds, shellfish, public lands/facilities, sensitive habitat
Fixed Anchors:	307: N 48° 35.268' / W 123° 10.225', shoreline anchor area, adjust as needed
Watercourse Description:	Puget Sound

**Suggested Equipment**

Quantity	Description
400 ft	B2 - Contractor Boom
1 each	Boat(s)
1 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
1	Laborer (s)

Status: Visited and Not Tested 09/17/2008

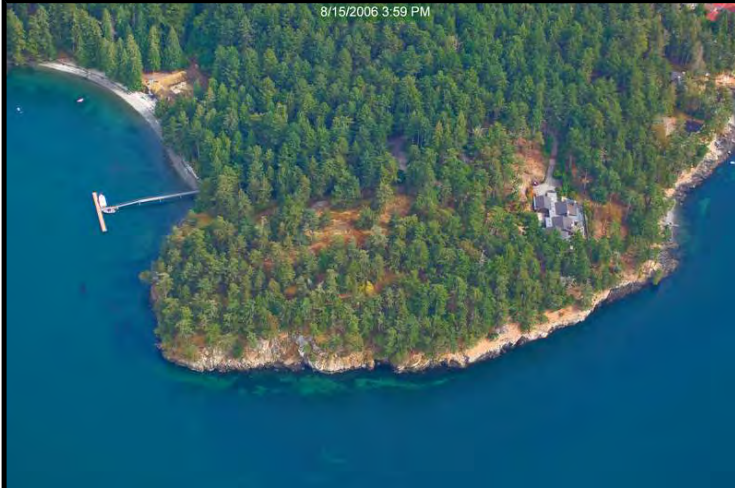


Image-1355: Shoreline anchor area

No Image Available

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

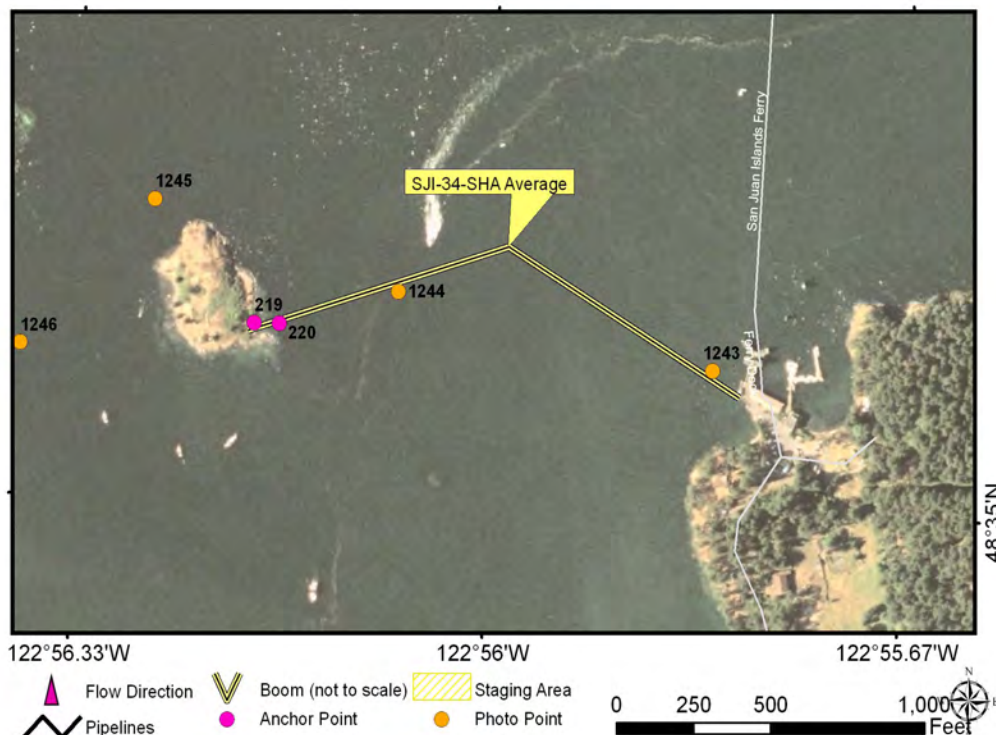
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 35.131' / W 122° 55.993', Sector Map SJI-6
Strategy Objective:	Exclusion - Keep oil out of bay.
Implementation:	Deploy boom from a piling south and west of the Shaw Island Ferry Dock to the east side of Blind Island (anchor bolts are set on island). Also run boom from piling to shore to close short gap. Boom can be deployed in a chevron configuration; adjust apex based on conditions.
Site Safety Note:	submerged rocks
Field Notes:	Good cell phone coverage
Resources Targeted:	waterfowl, baitfish, marine birds, shellfish, sensitive habitat
Fixed Anchors:	219: N 48° 35.090' / W 122° 56.190', Water Depth 0ft, Anchor bolt east side Blind Island, for high tide conditions; 220: N 48° 35.090' / W 122° 56.170', Anchor bolt east side Blind Island - for low tide conditions
Watercourse Description:	Bay, with opening broken into two gaps by Blind Island

**Suggested Equipment**

Quantity	Description
1800 ft	B2 - Contractor Boom
1 each	Boat(s)
3 each	Danforth(s) or other appropriate anchor

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/16/2008

SJI

E anchor point



N 48° 35' 04.39" W 122° 55' 49.23"

SE
09/16/2008

Image-1243: E anchor point, use pilings and stakes

SJI

E anchor point, bolts



N 48° 35' 06.48" W 122° 56' 04.50"

S
09/16/2008

Image-1244: W anchor bolts, on E side of Blind Island

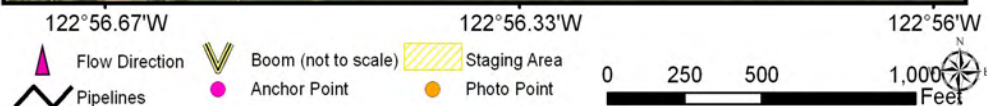
Site Contact Information

High Priority - contact immediate
or before entering:
General Number, Washington
State Parks, (W) 360-902-8844,
(8 a.m. - 5 p.m. Monday - Friday)

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 35.080' / W 122° 56.368', Sector Map SJI-6
Strategy Objective:	Exclusion - Keep oil out of bay.
Implementation:	Deploy boom from the west side of Blind Island (anchor bolts are set on island) to pilings at a dock on Shaw Island. Be aware of shallow rocks just north of the booming location (site of numerous groundings).
Site Safety Note:	Submerged rocks
Field Notes:	Spotty cell phone coverage
Resources Targeted:	waterfowl, baitfish, marine birds, shellfish, sensitive habitat
Fixed Anchors:	221: N 48° 35.120' / W 122° 56.270', Anchor bolt, W side of Blind Island for high tide conditions; 222: N 48° 35.110' / W 122° 56.270', Anchor bolt, W side of Blind Island for low tide conditions
Watercourse Description:	Bay, with opening broken into two channels by Blind Island

**Suggested Equipment**

Quantity	Description
1100 ft	B2 - Contractor Boom
1 each	Boat(s)
3 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/16/2008

SJI

E anchor point



N 48° 35' 04.58" W 122° 56' 22.69"

SW
09/16/2008

Image-1246: E anchor point

SJI

Area of 'bolt' anchor point



N 48° 35' 09.05" W 122° 56' 16.39"

S
09/16/2008

Image-1245: W anchor bolt

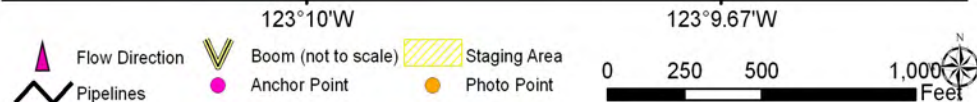
Site Contact Information

High Priority - contact immediate
or before entering:
General Number, Washington
State Parks, (W) 360-902-8844,
(8 a.m. - 5 p.m. Monday - Friday)

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 34.162' / W 123° 9.865', Sector Map SJI-2
Strategy Objective:	Exclusion, Collection - Keep oil out of the inner bay.
Implementation:	Deploy boom across the inner bay entrance at narrowest point. Angle boom to north shoreline on point for possible collection.
Site Safety Note:	Recreational boat traffic
Field Notes:	Spotty cell phone coverage
Resources Targeted:	waterfowl, marine birds, shellfish, sensitive habitat
Fixed Anchors:	301: N 48° 34.180' / W 123° 9.803', NE anchor area
Watercourse Description:	Bay, with narrow opening

**Suggested Equipment**

Quantity	Description
600 ft	B2 - Contractor Boom
1 each	Boat(s)
1 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)
Suggested Personnel	
1	Boat Operator (s)
1	Laborer (s)

Status: Visited and Not Tested 09/17/2008

SJI

N anchor point



N 48° 34' 09.09" W 123° 09' 49.53"

NE
09/17/2008

Image-1345: NE anchor area

SJI

S anchor point



N 48° 34' 09.12" W 123° 09' 49.53"

SW
09/17/2008

Image-1346: SW anchor area

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

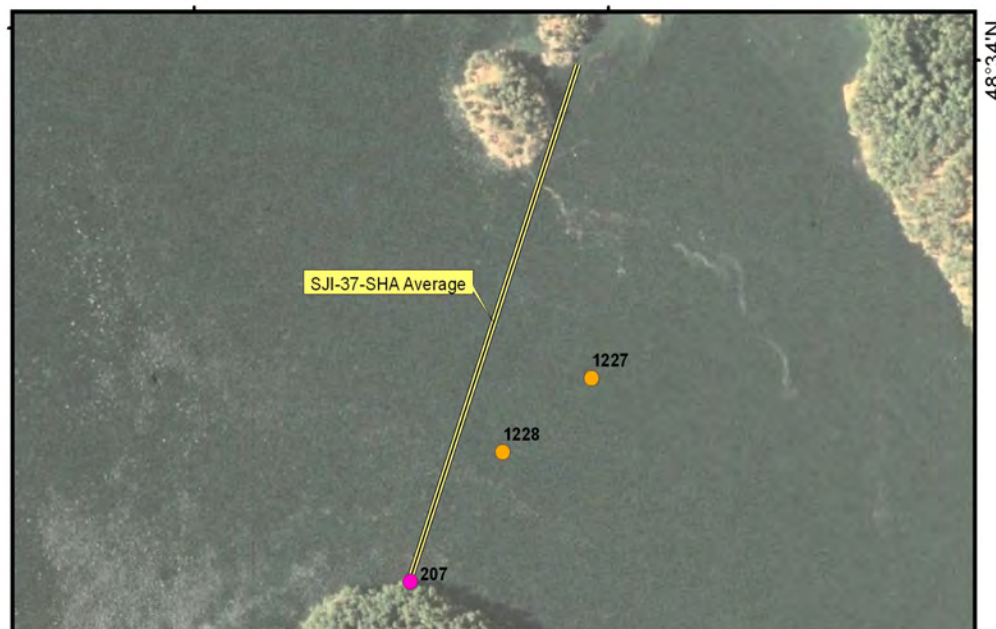
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 33.860' / W 122° 59.085', Sector Map SJI-6
Strategy Objective:	Exclusion - Keep oil out of bay.
Implementation:	Deploy boom near outer entrance to Parks Bay from the small island at the north end of the bay to the north end of the Point George Peninsula. The pass on the north side of the island is open only on a very high tide, boom if necessary.
Site Safety Note:	Slips, trips and falls when working along shoreline.
Field Notes:	Oil would be driven primarily by winds, be sure to close off the small gap between the island at the point and the mainland. Good cell phone coverage.
Resources Targeted:	marine birds, shellfish, sensitive habitat
Fixed Anchors:	207: N 48° 33.729' / W 122° 59.146', Water Depth 0ft, SE shoreline anchor point, adjust as needed
Watercourse Description:	Bay, with NW facing entrance

**Suggested Equipment**

Quantity	Description
2000 ft	B2 - Contractor Boom
1 each	Boat(s)
6 each	Danforth(s) or other appropriate anchor
8 each	Stake(s)
1 each	Work Boat(s)

Suggested Personnel

2	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/16/2008

SJI

N anchor point, also boom gap to mainland.



N 48° 33' 50.07" W 122° 59' 00.29"

SW
09/16/2008

Image-1227: N anchor point, also boom gap to mainland.

SJI

S anchor point



N 48° 33' 47.74" W 122° 59' 04.47"

SW
09/16/2008

Image-1228: S anchor point

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

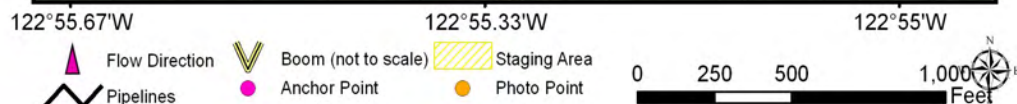
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 33.856' / W 122° 55.316', Sector Map SJI-6
Strategy Objective:	Exclusion - Keep oil out of Picnic Cove.
Implementation:	Deploy boom across entrance to Picnic Cove, shoreline is private property. Flood tides go S to N, Ebb tide goes E to W. Ebb tides create a faster current.
Site Safety Note:	Seasonal reef-net fishery
Field Notes:	Shoreline is privately owned, good cell phone coverage. Currently no anchor bolts in-place.
Resources Targeted:	marine birds, sensitive habitat
Fixed Anchors:	242: N 48° 33.893' / W 122° 55.253', NE shoreline anchor point, adjust as needed
Watercourse Description:	Cove, tear drop shaped

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
1 each	Boat(s)
1 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)

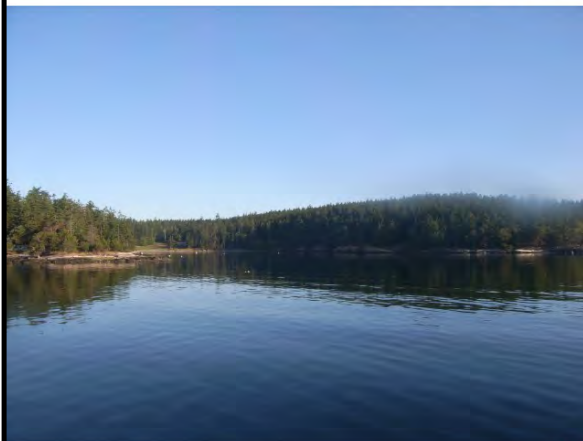
Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/16/2008

SJI

Entrance to Picnic Cove.



N 48° 33' 39.72" W 122° 55' 14.14"

SW
09/16/2008

Image-1278: Entrance to Picnic Cove

SJI

SW anchor point, large white boulder



N 48° 33' 50.23" W 122° 55' 19.36"

S
09/16/2008

Image-1279: SW anchor point, white boulder

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 33.760' / W 122° 56.219', Sector Map SJI-6
Strategy Objective:	Exclusion - Keep oil out of cove.
Implementation:	Deploy boom to keep oil away from shoreline in the northwest corner of Indian Cove (South Beach area). South attachment point is about 800ft SW of the launch ramp, angle boom towards N attachment point.
Site Safety Note:	Recreational boat traffic, seasonal crab pots.
Field Notes:	There is a large boulder next to the boat house which could be used as an attachment point.
Resources Targeted:	marine birds, shellfish, public lands/facilities, sensitive habitat
Fixed Anchors:	241: N 48° 33.872' / W 122° 56.029', N shoreline anchor point, adjust as needed
Watercourse Description:	Cove, with sandy beach and rocky shoreline

**Suggested Equipment**

Quantity	Description
2000 ft	B2 - Contractor Boom
1 each	Boat(s)
3 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
3	Laborer (s)

Status: Visited and Not Tested 09/16/2008

SJI

Boulder anchor point

SJI

W anchor point



N 48° 33' 45.34" W 122° 56' 03.15"

S
09/16/2008

Image-1277: E anchor point



N 48° 33' 39.96" W 122° 56' 15.18"

SW
09/16/2008

Image-1276: W anchor point

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

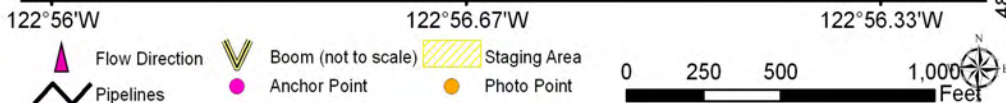
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 33.463' / W 122° 56.644', Sector Map SJI-6
Strategy Objective:	Collection, Exclusion - Keep oil out of bay. Deflect oil to east shore for collection.
Implementation:	Deploy boom at an angle across the entrance to the bay from a sandy beach on the west side of the entrance, northeast to the east shore of the entrance. The boom on the east shore can be placed so it will deflect oil into a small cove on the east shore.
Field Notes:	Flood tide runs from S to N, Ebb tide runs E to W.
Resources Targeted:	shellfish, sensitive habitat
Fixed Anchors:	239: N 48° 33.529' / W 122° 56.610', E shoreline anchor point at small cove, adjust as needed
Watercourse Description:	Bay, tear-drop shaped

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
1 each	Boat(s)
2 each	Danforth(s) or other appropriate anchor
8 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
3	Laborer (s)

Status: Visited and Not Tested 09/16/2008

SJI

SE anchor point

SJI

SW anchor point



N 48° 33' 29.22" W 122° 56' 39.06"

SE
09/16/2008

Image-1272: NE anchor point



N 48° 33' 28.87" W 122° 56' 39.09"

SW
09/16/2008

Image-1273: SW anchor point

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 33.211' / W 122° 52.390', Sector Map SJI-6
Strategy Objective:	Exclusion - Keep oil from moving up tide gate.
Implementation:	Block the remains of a tide gate with boards, sandbags, etc. to keep oil from moving into area behind tide gate.
Site Safety Note:	Mooring buoys, floating dock
Field Notes:	Takes about 1.5 hours to deploy, winds from the N will push oil up culvert.
Resources Targeted:	shellfish, sensitive habitat
Fixed Anchors:	244: N 48° 33.188' / W 122° 52.362', culvert location
Watercourse Description:	Lagoon, with culvert

**Suggested Equipment**

Quantity	Description
1 each	4 x 8 ft Plywood
6 each	Sandbag(s)

Suggested Personnel

2	Laborer (s)
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Status: Visited and Not Tested 09/15/2008

SJI

View of gate from water.



N 48° 33' 17.94" W 122° 52' 29.23"

SE
09/15/2008

Image-1282: Tide Gate from water

No Image Available

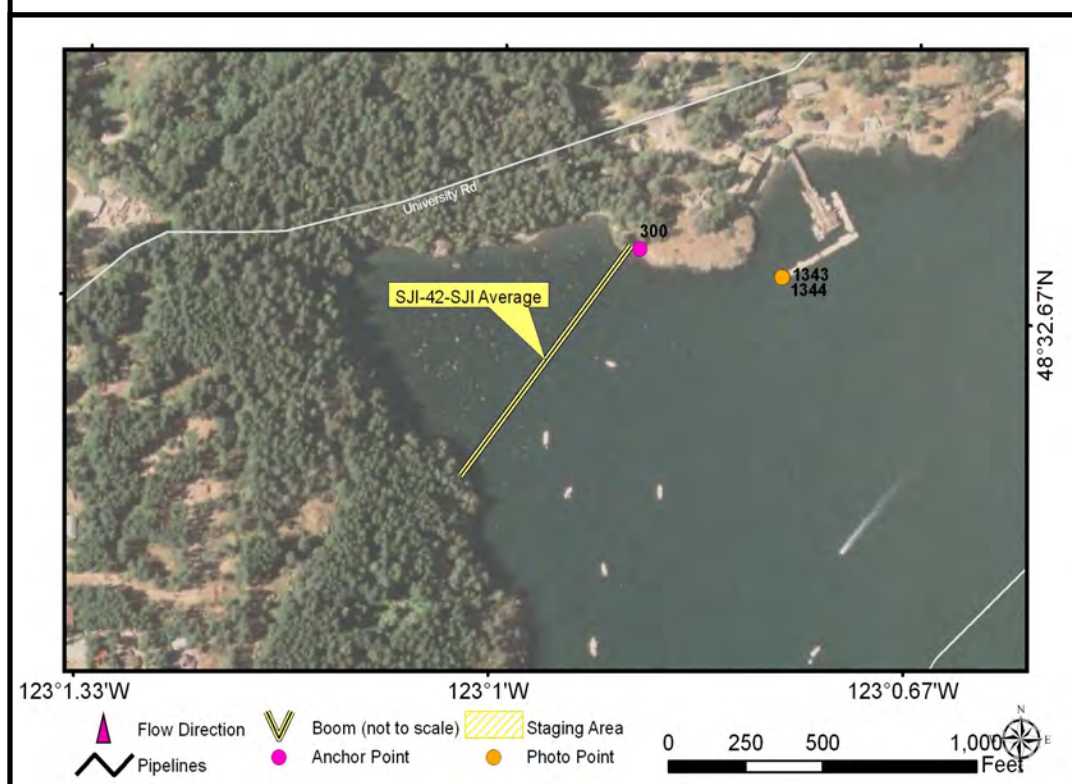
Site Contact Information

High Priority - contact immediate or before entering:
WDFW Emergency Hydraulic Project Approval, (M) 360-534-8233, 24-hour pager number. Responders must receive Emergency HPA from the WDFW prior to using culvert blocks and underflow dams.
Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.
Ask Sheriff's dispatcher to page IOSA.
Be sure to provide a way for IOSA

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 32.641' / W 123° 0.961', Sector Map SJI-3
Strategy Objective:	Exclusion - Keep oil out of cove.
Implementation:	Deploy boom across entrance to cove.
Site Safety Note:	Ferry and recreational boat traffic
Field Notes:	Rocky shoreline, anchor stakes may be difficult, part of Marine Lab shoreline.
Resources Targeted:	sensitive habitat, special protection area
Fixed Anchors:	300: N 48° 32.700' / W 123° 0.888', NW anchor area
Watercourse Description:	Cove

**Suggested Equipment**

Quantity	Description
900 ft	B2 - Contractor Boom
1 each	Boat(s)
1 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
1	Laborer (s)

Status: Visited and Not Tested 09/17/2008

SJI

NE anchor point

SJI

Overview of cove



N 48° 32' 41.26" W 123° 00' 46.33"

W
09/17/2008

Image-1344: NE anchor area



N 48° 32' 41.25" W 123° 00' 46.38"

W
09/17/2008

Image-1343: Overview of cove

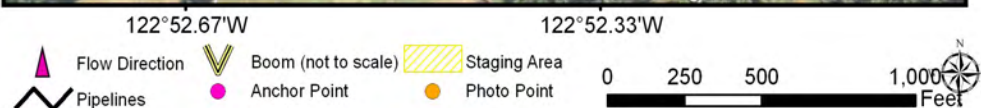
Site Contact Information

Responsible party or alternate contact:
Friday Harbor Laboratory, (W)
206-543-1484, University of Washington

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 32.501' / W 122° 52.433', Sector Map SJI-6
Strategy Objective:	Exclusion - Keep oil out of the marsh.
Implementation:	Block the culvert with boards, sandbags, etc. Tidal dependent - below 3.2 the culvert is above the water surface, above 6.2 culvert is below water surface.
Site Safety Note:	Some moorage buoys and shallow waters in the bay if done from the water. Take traffic safety precautions if done from road.
Field Notes:	Tidal dependent - below +3.2 the culvert is above the water surface, above +6.2 culvert is below water surface. Takes about 1 hour once on site. Requires a HPA; see contact information.
Resources Targeted:	sensitive habitat
Fixed Anchors:	285: N 48° 32.502' / W 122° 52.429', culvert location
Watercourse Description:	Saltmarsh, fed by culvert

**Suggested Equipment**

Quantity	Description
1 each	4 x 8 ft Plywood
6 each	Sandbag(s)

Suggested Personnel

2	Laborer (s)
---	-------------

Status: Visited and Not Tested 09/15/2008

SJI

Culvert on public beach.



N 48° 32' 36.11" W 122° 52' 20.13"

S
09/15/2008

Image-1319: Water view of culvert

No Image Available

Site Contact Information

High Priority - contact immediate or before entering:
WDFW Emergency Hydraulic Project Approval, (M) 360-534-8233, 24-hour pager number. Responders must receive Emergency HPA from the WDFW prior to using culvert blocks and underflow dams.
Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.
Ask Sheriff's dispatcher to page IOSA.
Be sure to provide a way for IOSA

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 32.429' / W 123° 9.644', Sector Map SJI-3
Strategy Objective:	Exclusion, Collection - Keep oil out of bay, and if oil present collect.
Implementation:	Deploy boom across the entrance to the bay, adjust location based on real-time conditions, with rough conditions will need to move farther into bay. If oil is present, adjust boom to allow for collection by vac truck.
Site Safety Note:	Slips, trips and falls
Field Notes:	Spotty cell phone coverage; county park has limited parking, bathrooms and small boat ramp.
Resources Targeted:	waterfowl, public lands/facilities
Fixed Anchors:	295: N 48° 32.456' / W 123° 9.677', NW anchor area, may be able to use chain to attach to rocks
Watercourse Description:	Bay

**Suggested Equipment**

Quantity	Description
500 ft	B2 - Contractor Boom
1 each	Boat(s)
20 ft	Chain
1 each	Danforth(s) or other appropriate anchor
4 each	Screw Anchor(s)
1 each	Vac Truck(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/17/2008

SJI

N anchor point

SJI

Overview Small Pox Bay



N 48° 32' 25.34" W 123° 09' 41.53"

NW
09/17/2008

Image-1337: NE anchor area



N 48° 32' 21.76" W 123° 09' 49.28"

E
09/17/2008

Image-1338: Small Pox Bay overview

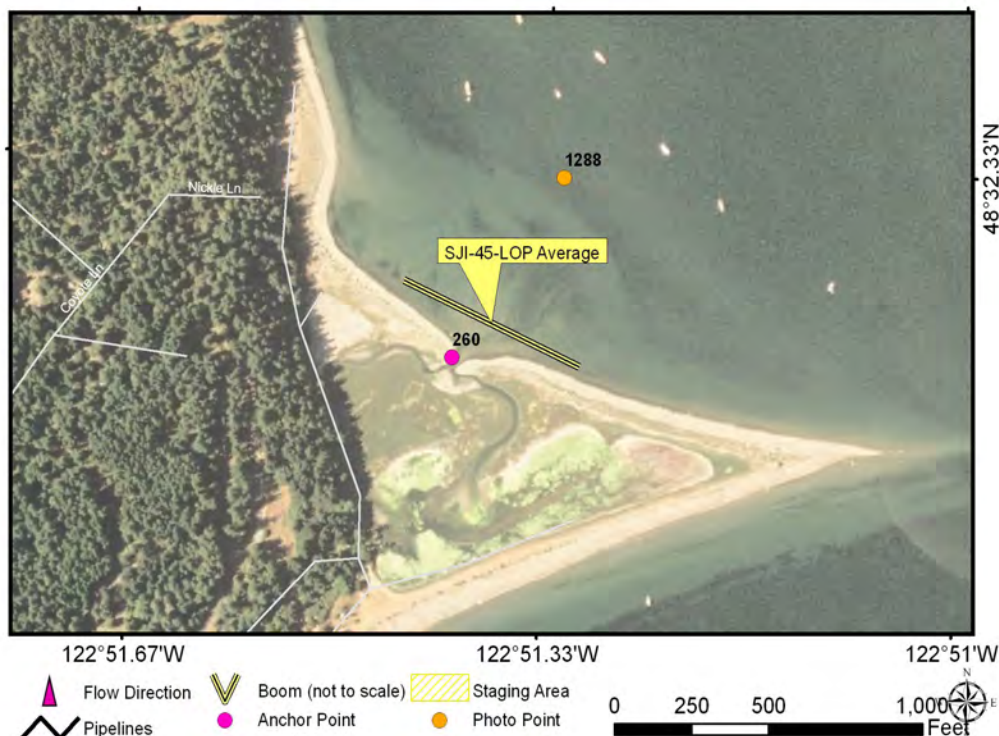
Site Contact Information

Responsible party or alternate contact:
San Juan Parks, (W) 360-378-8420

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 32.253' / W 122° 51.376', Sector Map SJI-6
Strategy Objective:	Exclusion - Keep oil out of the lagoon on Spencer Spit.
Implementation:	Two options: 1) Blocking the entrance with a temporary dike, boards, sandbags, etc., will need heavy equipment as gap can be 80 feet. Requires HPA, see contact info. 2) Deploy boom in front of the lagoon entrance. If possible do #1 as it would be most effective.
Site Safety Note:	Very shallow, requires very high tide (+7.5) to access by boat.
Field Notes:	Has cell phone coverage
Resources Targeted:	waterfowl, shorebirds, sensitive habitat, public lands/facilities
Fixed Anchors:	260: N 48° 32.236' / W 122° 51.407', E bank of channel, adjust as needed
Watercourse Description:	Lagoon, fed by 80 ft channel



Suggested Equipment

Quantity	Description
100 ft	B2 - Contractor Boom
200 each	Sandbag(s)
4 each	Stake(s)

Suggested Personnel

10	Laborer (s)
1	Supervisor (s)

Status: Visited and Not Tested 09/15/2008

SJI

View of channel that feeds marsh.



N 48° 32' 19.70" W 122° 51' 19.26"

S
09/15/2008

Image-1288: Channel overview

No Image Available

Site Contact Information

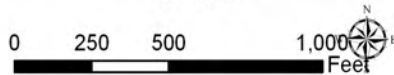
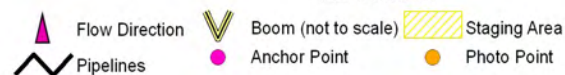
High Priority - contact immediate or before entering:
WDFW Emergency Hydraulic Project Approval, (M) 360-534-8233, 24-hour pager number. Responders must receive Emergency HPA from the WDFW prior to using culvert blocks and underflow dams.
General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday)

Closest Address:

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 31.375' / W 122° 55.252', Sector Map SJI-6
Strategy Objective:	Exclusion - Keep oil out of Fishermen's Bay. if not feasible, deploy SJI-49-LOP and SJI-51-LOP after SJI-47 and SJI-48
Implementation:	Deploy boom in two cascading sections to deflect oil away from the bay entrance. For the first section, deploy 1000' of boom from a point on the shore north of the county access at about 48°-31.525'N 122°-5.980'W to the channel navigational marker (do not attach the boom to the marker). Deploy 1200' of boom for the second section from the navigation marker to the shore on the peninsula about 1500-1700 feet west from the entrance channel at 48°-31.310'N 122°-55.445'W. Overlap the boom sections by about 100', with the first section on the outside.
Site Safety Note:	Large rock to the N of the channel marker, moorage buoys and recreational boat traffic.
Field Notes:	Flood tide currents run from north to south along shore. Double anchors should be used at the ends at the marker and at the mid-point of each boom.
Resources Targeted:	waterfowl, shorebirds, marine birds, herons & other wading birds, sensitive habitat
Fixed Anchors:	269: N 48° 31.308' / W 122° 55.344', need accurate gps points - ask Julie
Watercourse Description:	Bay, fed by narrow channel, has complex currents

**Suggested Equipment**

Quantity	Description
2200 ft	B2 - Contractor Boom
2 each	Boat(s)
8 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)

Suggested Personnel

2	Boat Operator (s)
4	Laborer (s)

Status: Visited and Not Tested 09/15/2008

SJI

Inlet to Fisherman's bay.



N 48° 31' 23.67" W 122° 55' 03.43"

S
09/15/2008

Image-1301: Inlet to Fishermens' Bay

SJI

Anchor point on shore.



N 48° 31' 23.67" W 122° 55' 03.43"

W
09/15/2008

Image-1302: Spit for shoreline anchor point.

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

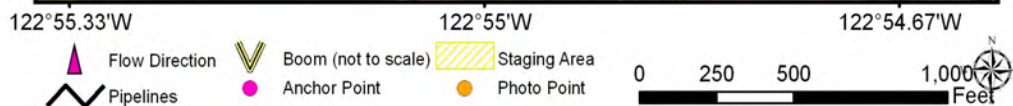
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 31.371' / W 122° 54.981', Sector Map SJI-6
Strategy Objective:	Collection, Exclusion - Keep oil out of Fishermen's Bay, collect oil if present.
Implementation:	Deploy boom from the beach on the east side of the entrance channel to collect oil entering the bay on a flood tide. Current through the channel can be very strong, adjust angle and length of boom accordingly. Vac truck must remain on road or hardened surface. If collection of oil not feasible, skip this strategy and deploy SJI-49-LOP and SJI-51-LOP.
Site Safety Note:	Large rock to the N of the channel marker
Field Notes:	Has cell phone coverage, vac truck accessible, and need flood tide to be effective
Resources Targeted:	waterfowl, shorebirds, marine birds, herons & other wading birds, sensitive habitat
Fixed Anchors:	277: N 48° 31.350' / W 122° 54.956', E shoreline anchor area, adjust as needed
Watercourse Description:	Bay, with relatively narrow opening, has strong tidal influence

**Suggested Equipment**

Quantity	Description
100 ft	B2 - Contractor Boom
2 each	Danforth(s) or other appropriate anchor
3 each	Stake(s)
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/15/2008

SJI

Collection site.



N 48° 31' 21.36" W 122° 55' 01.01"

E
09/15/2008

Image-1311: E shoreline anchor area

No Image Available

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 31.321' / W 122° 55.004', Sector Map SJI-6
Strategy Objective:	Collection, Exclusion - Keep oil out of Fishermen's Bay, collect oil if present
Implementation:	Deploy boom from the beach on the east side of the entrance channel to collect oil entering the bay on a flood tide. Current through the channel can be very strong, adjust angle and length of boom accordingly. Shoreline is vac truck accessible. Vac truck must remain on road or hardened surface.
Site Safety Note:	Rapid currents which can make maneuvering with boom a little tricky. Large rock to the N of the channel marker.
Field Notes:	Has cell phone coverage, vac truck accessible, and need flood tide to be effective
Resources Targeted:	waterfowl, shorebirds, herons & other wading birds, marine birds, sensitive habitat
Fixed Anchors:	278: N 48° 31.313' / W 122° 54.986', E shoreline anchor area, adjust as needed
Watercourse Description:	Bay, with relatively narrow opening, has strong tidal influence

**Suggested Equipment**

Quantity	Description
100 ft	B2 - Contractor Boom
2 each	Danforth(s) or other appropriate anchor
3 each	Stake(s)
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/15/2008

SJI

Collection site near docks.



N 48° 31' 18.96" W 122° 55' 04.09"

SE
09/15/2008

Image-1312: E shoreline anchor area

No Image Available

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

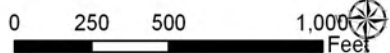
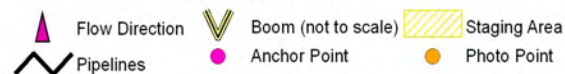
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 31.239' / W 122° 55.135', Sector Map SJI-6
Strategy Objective:	Exclusion - Keep oil out of the cove.
Implementation:	Necessary only if LOP-47 cannot be deployed or is unlikely to exclude oil from the bay due to strong flood tide currents, or winds from the north or west. Deploy boom across the mouth of the cove from north to south to keep oil out of the cove. If collection of oil not feasible, skip this strategy and deploy SJI-49-LOP and SJI-51-LOP.
Site Safety Note:	Moorage buoys and recreational boat traffic, and beached boat, shallow waters
Field Notes:	Has cell phone coverage, takes about 1.5 hours to deploy once on site.
Resources Targeted:	shorebirds, herons & other wading birds, sensitive habitat
Fixed Anchors:	270: N 48° 31.292' / W 122° 55.185', N shoreline anchor point, adjust as needed
Watercourse Description:	Bay, with numerous coves.

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
1 each	Boat(s)
5 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/15/2008

SJI

SE anchor point.



N 48° 31' 14.92" W 122° 55' 06.99"

SE
09/15/2008

Image-1303: SE shoreline anchor point, adjust as needed.

SJI

SW anchor point.



N 48° 31' 14.92" W 122° 55' 06.99"

SW
09/15/2008

Image-1304: SW anchor point, adjust as needed.

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

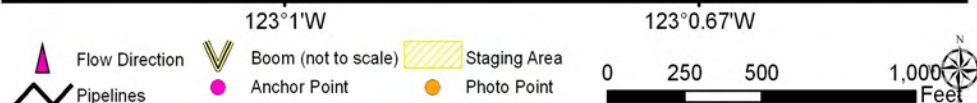
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 31.161' / W 123° 0.847', Sector Map SJI-3
Strategy Objective:	Exclusion, Collection - Keep oil out of lagoon.
Implementation:	Deploy boom across lagoon entrance. Generally best to deploy inside the channel as it is more protected. Best site is from the ramp with the floating dock across to point on E side. If oil is present, boom can be angled to collect oil on ramp side. Area is vac truck accessible. High priority site.
Site Safety Note:	Recreational boat traffic
Field Notes:	Best to be inside channel as it is more protected, has cell phone coverage, the beach next to this site is known to collect dead birds.
Resources Targeted:	shellfish, sensitive habitat, special protection area
Fixed Anchors:	293: N 48° 31.164' / W 123° 0.791', E shoreline anchor area near dock and ramp; 294: N 48° 31.152' / W 123° 0.893', W shoreline anchor area, adjust as needed
Watercourse Description:	Lagoon, with relatively narrow opening

**Suggested Equipment**

Quantity	Description
600 ft	B2 - Contractor Boom
1 each	Boat(s)
2 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)
1 each	Vac Truck(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/15/2008

SJI

E anchor point



N 48° 31' 07.58" W 123° 00' 51.27"

E
09/17/2008

Image-1336: E anchor area

SJI

W anchor point



N 48° 31' 07.58" W 123° 00' 51.27"

W
09/17/2008

Image-1335: W anchor area

Site Contact Information

Responsible party or alternate contact:
Port of Friday Harbor, (W) 360-378-2688, (M) 360-378-6114

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 31.076' / W 122° 55.145', Sector Map SJI-6
Strategy Objective:	Exclusion - Keep oil out of the cove.
Implementation:	Necessary only if strategy at mouth of channel cannot be deployed or is unlikely to exclude oil from the bay due to strong flood tide currents, or winds from the north or west. Deploy boom across the mouth of the cove from northwest to southeast to keep oil out of the cove.
Site Safety Note:	Large rock to the N of the channel marker, moored boats, recreational boat traffic
Field Notes:	Has cell phone coverage, takes about 1 hour to deploy once on site.
Resources Targeted:	waterfowl, sensitive habitat, herons & other wading birds
Fixed Anchors:	279: N 48° 31.138' / W 122° 55.199', N shoreline anchor point; 280: N 48° 31.024' / W 122° 55.118', S shoreline anchor point, adjust as needed
Watercourse Description:	Cove, relatively low energy area

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
1 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
1	Laborer (s)

Status: Visited and Not Tested 09/15/2008

SJI

SW anchor point.

SJI

S anchor point.



N 48° 31' 07.57" W 122° 55' 07.95"

SW
09/15/2008

Image-1313: NW anchor point, adjust as needed



N 48° 31' 07.00" W 122° 55' 07.52"

S
09/15/2008

Image-1314: SW anchor area

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

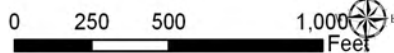
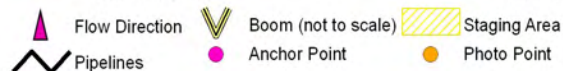
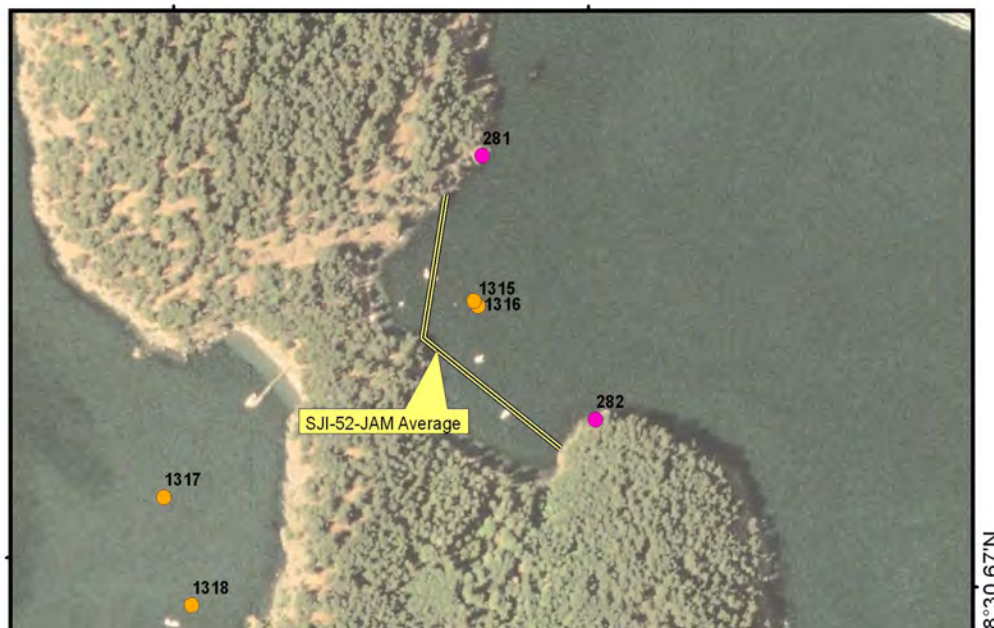
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 30.817' / W 122° 46.371', Sector Map SJI-6
Strategy Objective:	Exclusion - Keep oil out of the cove.
Implementation:	Deploy boom in an inverted chevron, use point in the middle of the cove to attach boom to the shore, and anchor to maintain position. If possible, use mooring buoys to help hold boom in place.
Site Safety Note:	Recreational boat traffic, submerged rocks
Field Notes:	Weak cell phone coverage, takes about 2 hours to deploy, there are porta-potties at the park.
Resources Targeted:	public lands/facilities
Fixed Anchors:	281: N 48° 30.877' / W 122° 46.415', N shoreline anchor area, adjust as needed; 282: N 48° 30.746' / W 122° 46.318', S shoreline anchor point, adjust as needed
Watercourse Description:	Cove

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
1 each	Boat(s)
2 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/15/2008

SJI

SW anchor point.

SJI

SE anchor point.



N 48° 30' 48.07" W 122° 46' 24.91"

SW
09/15/2008

Image-1315: Anchor area, adjust as needed



N 48° 30' 48.22" W 122° 46' 25.12"

SE
09/15/2008

Image-1316: Anchor point area, adjust as needed

Site Contact Information

High Priority - contact immediate or before entering:

General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday)
Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151,
Contact San Juan County Sheriff at 360-378-4151.

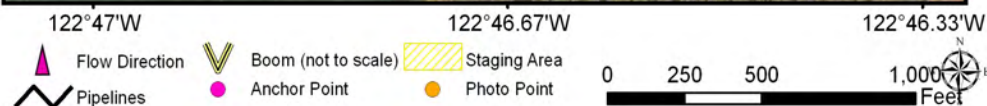
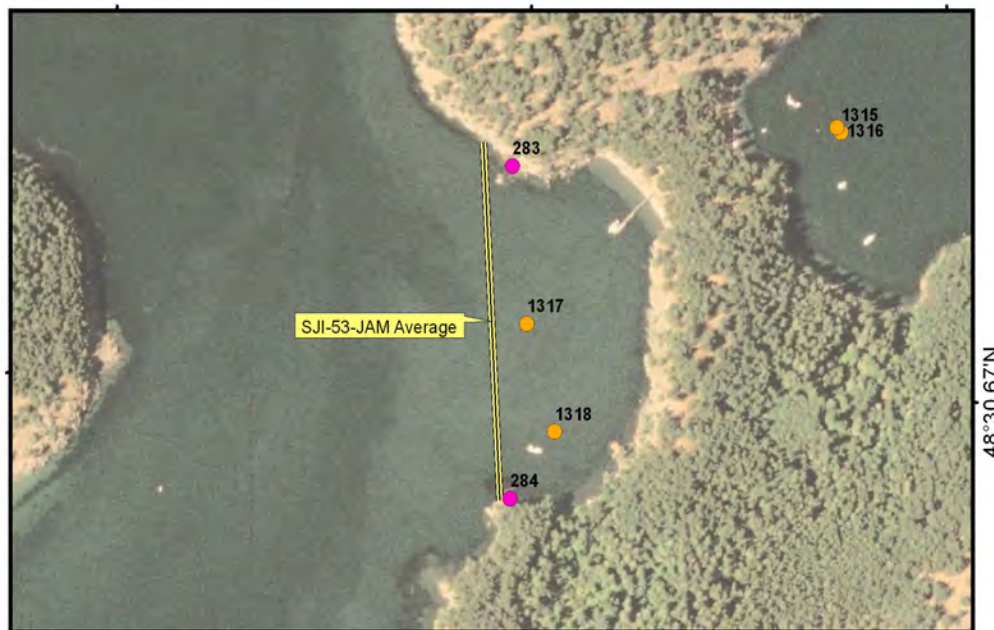
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 30.700' / W 122° 46.692', Sector Map SJI-6
Strategy Objective:	Exclusion - Keep oil out of the cove.
Implementation:	Deploy boom across the narrowest part of the entrance to the cove on the west side of the island. Attach boom to the shore, and anchor to maintain position. If possible, use mooring buoys to help hold boom in place.
Site Safety Note:	Moored boats, recreational boat traffic
Field Notes:	Has cell phone coverage, minimum 1.5 hours to deploy once on site.
Resources Targeted:	public lands/facilities
Fixed Anchors:	283: N 48° 30.779' / W 122° 46.679', N anchor area, adjust as needed; 284: N 48° 30.612' / W 122° 46.673', S anchor area, adjust as needed
Watercourse Description:	Cove

**Suggested Equipment**

Quantity	Description
1400 ft	B2 - Contractor Boom
1 each	Boat(s)
4 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
3	Laborer (s)

Status: Visited and Not Tested 09/15/2008

SJI

Left side of beach.

SJI

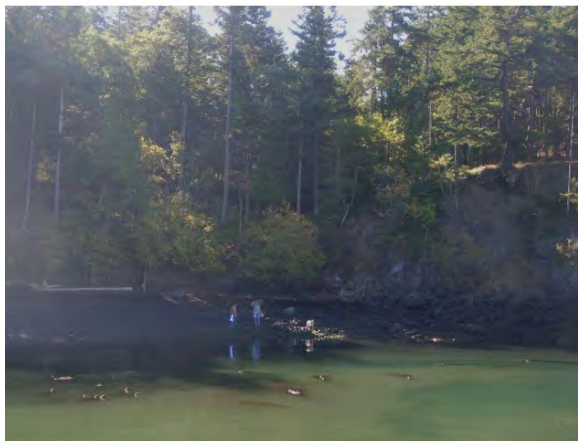
SE anchor point.



N 48° 30' 42.00" W 122° 46' 39.82"

NW
09/15/2008

Image-1317: N anchor area



N 48° 30' 38.77" W 122° 46' 38.35"

SE
09/15/2008

Image-1318: S anchor area

Site Contact Information

High Priority - contact immediate or before entering:

General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday)
Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151,
Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.







Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 30.419' / W 122° 55.875', Sector Map SJI-6
Strategy Objective:	Exclusion - Keep oil out of the lagoon.
Implementation:	Deploy boom across the entrance to the lagoon. Access may be difficult, much of the entrance is a mudflat at low tide.
Site Safety Note:	Moorage buoys and recreational boat traffic. Access may be difficult, much of the entrance is a mudflat at low tide.
Field Notes:	Has cell phone coverage, requires about 1.5 hours to deploy once on site.
Resources Targeted:	waterfowl, shorebirds, herons & other wading birds, sensitive habitat
Fixed Anchors:	271: N 48° 30.499' / W 122° 55.925', NW shoreline anchor area, adjust as needed
Watercourse Description:	Lagoon, at the S end of Fishermen's Bay



 Flow Direction
 Boom (not to scale)
 Staging Area
 Anchor Point
 Photo Point
 Pipelines

0 250 500 1,000 Feet

Suggested Equipment

Quantity	Description
1000 ft	B2 - Contractor Boom
1 each	Boat(s)
5 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
3	Laborer (s)

Status: Visited and Not Tested 09/15/2008

SJI

Anchor point near white boulder.



N 48° 30' 29.65" W 122° 55' 40.35"

SW
09/15/2008

Image-1305: Anchor point near white boulder

SJI

High bank near house.



N 48° 30' 30.40" W 122° 55' 38.59"

S
09/15/2008

Image-1306: Lagoon overview.

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 28.897' / W 123° 4.232', Sector Map SJI-3
Strategy Objective:	Collection, Exclusion - Keep oil out of bay or divert oil to collection point on beach where it can be recovered.
Implementation:	Deploy 2000' of boom at an angle across the entrance of the bay. May be possible to collect oil at a small pocket beach on the east side. Use the remaining 300' of boom to direct the oil to the collection site. Vac truck would need 200 ft hose and booster pump. Rock anchors are very important at this location and the cable between the high and low bolt on the west side of the entrance is also important due to the steep bed rock shore and intensity of the flood tide hitting that side of the entrance.
Site Safety Note:	Submerged rocks mid-bay and on the east side, attaching to the west shore will often involve climbing on rocks. IOSA has really good private property access on both sides
Field Notes:	1 Hour transit time from Shoal Bay, takes about 1.5 hours to deploy once on site.
Resources Targeted:	waterfowl, shorebirds, baitfish, salmonids (anadromous), marine birds, shellfish, raptors, sensitive habitat
Fixed Anchors:	292: N 48° 28.913' / W 123° 4.472', W shoreline anchor area
Watercourse Description:	Bay

**Suggested Equipment**

Quantity	Description
2300 ft	B2 - Contractor Boom
1 each	Boat(s)
4 each	Danforth(s) or other appropriate anchor
8 each	Stake(s)
1 each	Vac Truck(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/17/2008

SJI

E anchor point, bolt

SJI

W anchor point, bolt



N 48° 28' 51.64" W 123° 04' 17.56"

E
09/17/2008

Image-1334: E anchor area



N 48° 28' 51.62" W 123° 04' 28.80"

W
09/17/2008

Image-1333: W anchor area

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

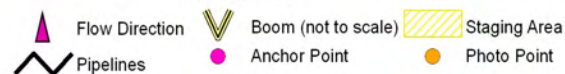
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 28.068' / W 122° 50.177', Sector Map SJI-7
Strategy Objective:	Exclusion - Keep oil out of the bay.
Implementation:	Deploy boom in a chevron from Fortress Island to the shore on the Sperry Peninsula. Fortress Island does have bolts. Oil entrained under the boom between Crab Island and Fortress Island may circle around the bay and move north to this boom.
Site Safety Note:	Entire area is private property; do not land without contacting Sperry Peninsula Security.
Field Notes:	Has cell phone coverage, difficult tides, takes a minimum of 2 hours under ideal conditions.
Resources Targeted:	waterfowl, baitfish, shorebirds, marine birds, shellfish, herons & other wading birds, sensitive habitat
Fixed Anchors:	261: N 48° 27.948' / W 122° 50.269', bolt on Fortress Island
Watercourse Description:	Bay, part of wide channel which feeds bay

**Suggested Equipment**

Quantity	Description
1800 ft	B2 - Contractor Boom
2 each	Boat(s)
8 each	Danforth(s) or other appropriate anchor

Suggested Personnel

2	Boat Operator (s)
4	Laborer (s)

Status: Visited and Not Tested 09/15/2008

SJI

Sperry Island anchor point.



N 48° 28' 04.41" W 122° 50' 02.02"

E
09/15/2008

Image-1289: Sperry Island anchor point, private property

SJI

Close up of anchor bolt north side.



N 48° 27' 56.86" W 122° 50' 16.12"

S
09/15/2008

Image-1290: Fortress Island anchor point.

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.







Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 27.766' / W 122° 50.469', Sector Map SJI-7
Strategy Objective:	Exclusion - Keep oil out of the bay.
Implementation:	Deploy boom from Crab Island to Fortress Island in a chevron configuration with the apex pointed into Mud Bay. Rock anchors have been installed at the high and low tide lines on the southwest corner of Fortress Island, directly across from Crab Island. Also there are rock anchors on Crab Island.
Site Safety Note:	Submerged rocks, recreational boat traffic
Field Notes:	Area has extreme currents, best to deploy at slack tide, has cell phone coverage, requires 3 hours to deploy.
Resources Targeted:	waterfowl, shorebirds, baitfish, marine birds, shellfish, herons & other wading birds, sensitive habitat
Fixed Anchors:	287: N 48° 27.890' / W 122° 50.320', Anchor bolt Fortress Island
Watercourse Description:	Bay, has extreme tidal influence



 Flow Direction
 Boom (not to scale)
 Staging Area
 Anchor Point
 Photo Point
 Pipelines

0 250 500 1,000 Feet

Suggested Equipment

Quantity	Description
2000 ft	B2 - Contractor Boom
2 each	Boat(s)
10 each	Danforth(s) or other appropriate anchor

Suggested Personnel

2	Boat Operator (s)
4	Laborer (s)

Status: Visited and Not Tested 09/15/2008

SJI

Close up of anchor bolt south side.



N 48° 27' 52.98" W 122° 50' 19.47"

09/15/2008

Image-1324: Anchor bolt S side Fortress Island

SJI

Fortress island overview.



N 48° 27' 51.37" W 122° 50' 20.47"

09/15/2008

Image-1323: Fortress Island overview

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

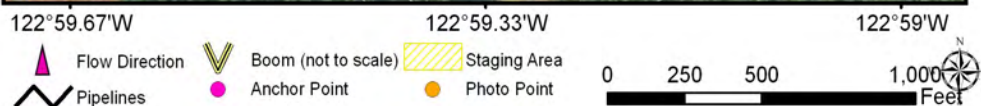
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 27.758' / W 122° 59.341', Sector Map SJI-3
Strategy Objective:	Exclusion - Keep oil out of lagoon.
Implementation:	Much of the year the channel to the lagoon is closed-off. Contact the National Park to determine status of opening. If open, deploy boom across opening. Be careful to minimize disturbance to beach. Requires 24 hour presence to insure channel stays closed.
Site Safety Note:	beach logs
Field Notes:	American Camp visitors center has parking, phones, and bathrooms. If accessed by vehicles, call Park and use ATV road for about .6 mile to the lagoon.
Resources Targeted:	waterfowl, shorebirds, salmonids (anadromous), herons & other wading birds, public lands/facilities, sensitive habitat
Fixed Anchors:	204: N 48° 27.745' / W 122° 59.358', Water Depth 0ft, anchor point for channel opening on day of visit, adjust as needed
Watercourse Description:	Lagoon, with small channel opening, Field Visit Width ~ 6ft

**Suggested Equipment**

Quantity	Description
100 ft	B2 - Contractor Boom
2 each	Stake(s)

Suggested Personnel

2	Laborer (s)
---	-------------

Status: New - visited but not tested 09/18/2009

SJI Lagoons

Jakles Lagoon, channel along bank



N 48° 27' 43.98" W 122° 59' 20.91"

S
09/18/2008

Image-1221: Channel in far right of photo.

No Image Available

Site Contact Information

High Priority - contact immediate or before entering:
Dederick Peter, NPS SJI, (W) 360 378-2240, Contact for access, local information for English Camp and American Camp.

Closest Address:

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 27.717' / W 122° 58.562', Sector Map SJI-3
Strategy Objective:	Exclusion - Keep oil out of lagoon and salt marsh.
Implementation:	Deploy chevron on the outside of the channel into open water. Be careful to minimize disturbance to beach.
Site Safety Note:	Possible strong currents, beach logs.
Staging Area:	Argyle Lagoon - N Bay, SJI-50-SJI-staging
Field Notes:	If the park service contacted, land access maybe possible via American Camp and a 1.5 mile ATV road. If coming by water, would need a boat which would support off loading bobcat or similar equipment
Resources Targeted:	waterfowl, shorebirds, salmonids (anadromous), herons & other wading birds, public lands/facilities, sensitive habitat
Fixed Anchors:	203: N 48° 27.701' / W 122° 58.573', Water Depth 0ft, E shoreline anchor point
Watercourse Description:	Lagoon, small channel provides flow, can be seasonally blocked, Field Visit Width ~ 40ft, Field Visit Depth ~ 3ft, sand, gravel

**Suggested Equipment**

Quantity	Description
200 ft	B3 - River Boom, or other appropriate type
1 each	Boat(s)
4 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: New - visited but not tested 09/18/2008

SJI Lagoons

Third Lagoon channel



N 48° 27' 41.85" W 122° 58' 33.92"

S
09/18/2008

Image-1219: Channel Third Lagoon

No Image Available

Site Contact Information

High Priority - contact immediate or before entering:
Dederick Peter, NPS SJI, (W) 360 378-2240, Contact for access, local information for English Camp and American Camp.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 27.710' / W 122° 49.429', Sector Map SJI-7
Strategy Objective:	Exclusion - Keep oil out of far end of bay and salt marsh.
Implementation:	Deploy boom across the entrance to the cove to protect the lagoon and tidal marsh. This is a backup strategy.
Site Safety Note:	Boat sucking mud.
Field Notes:	Does have cell phone coverage, once on site requires 2-3 hours to deploy, would only be done if SJI-62-LOP fails.
Resources Targeted:	waterfowl, shorebirds, shellfish, herons & other wading birds, sensitive habitat
Fixed Anchors:	264: N 48° 27.785' / W 122° 49.440', N shoreline anchor point, adjust as needed; 265: N 48° 27.627' / W 122° 49.431', S shoreline anchor point, adjust as needed
Watercourse Description:	Bay, with salt marsh at tip

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
1 each	Boat(s)
3 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/15/2008

SJI

Anchor point on shore.



N 48° 27' 37.83" W 122° 49' 41.91"

SE
09/15/2008

Image-1294: Overview of bay tip

SJI

Anchor point on shore.



N 48° 27' 37.54" W 122° 49' 42.28"

SE
09/15/2008

Image-1293: S shoreline anchor area.

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

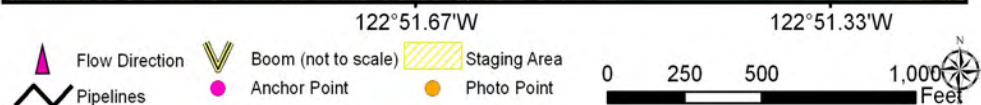
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 27.645' / W 122° 51.618', Sector Map SJI-7
Strategy Objective:	Exclusion - Keep oil out of cove
Implementation:	Deploy boom across cove opening. If feasible use mooring buoys, and pier to help hold boom in place.
Site Safety Note:	Recreational boat traffic, mooring buoys
Field Notes:	Currents can be strong in this area, adjust as needed.
Resources Targeted:	baitfish, sensitive habitat
Fixed Anchors:	304: N 48° 27.691' / W 122° 51.622', N shoreline anchor area
Watercourse Description:	Cove

**Suggested Equipment**

Quantity	Description
600 ft	B2 - Contractor Boom
1 each	Boat(s)
1 each	Danforth(s) or other appropriate anchor

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: New - visited but not tested 09/15/2008



Image-1354: N anchor area

No Image Available

Site Contact Information

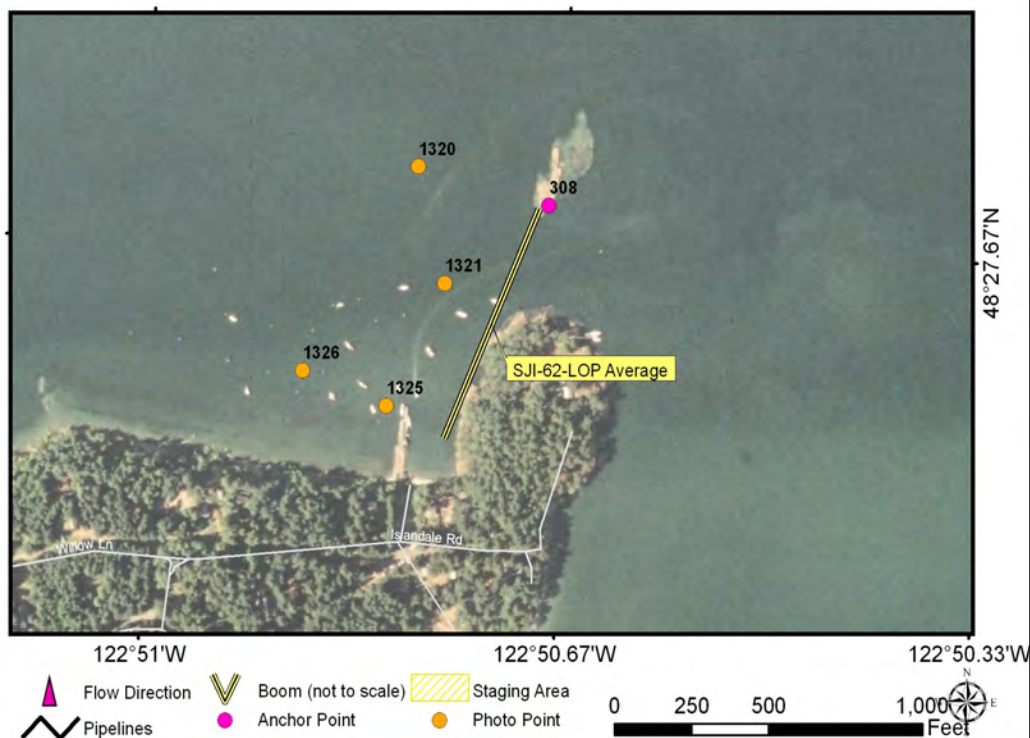
High Priority - contact immediate or before entering:
 Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151,
 Contact San Juan County Sheriff at 360-378-4151.
 Ask Sheriff's dispatcher to page IOSA.
 Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 27.629' / W 122° 50.723', Sector Map SJI-7
Strategy Objective:	Exclusion - Keep oil out of the bay.
Implementation:	Deploy boom from Crab Island to the county dock on the west shore. Oil moving past the county dock will be directed to the booms east of Crab Island for collection.
Site Safety Note:	Mooring buoys and recreational boat traffic
Field Notes:	Has cell phone coverage, requires personal on site to adjust boom based on currents.
Resources Targeted:	waterfowl, shorebirds, baitfish, marine birds, shellfish, herons & other wading birds, sensitive habitat
Fixed Anchors:	308: N 48° 27.690' / W 122° 50.680', Anchor bolt, Crab island
Watercourse Description:	Bay

**Suggested Equipment**

Quantity	Description
800 ft	B2 - Contractor Boom
1 each	Boat(s)
8 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/15/2008

SJI



N 48° 27' 38.95" W 122° 50' 45.71"

S
09/15/2008

Image-1321: Anchor area

SJI

Crab island overview.



N 48° 27' 42.45" W 122° 50' 47.13"

SE
09/15/2008

Image-1320: Crab Island overview

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

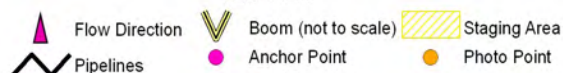
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 27.571' / W 122° 50.830', Sector Map SJI-7
Strategy Objective:	Collection - Collect oil at dock
Implementation:	Deploy boom so that currents aid in collection at dock. Area is vac truck accessible. Currents can be very strong, will require 24/7 tending. Purpose of boom is collection not protection of dock.
Site Safety Note:	Recreational boat traffic, mooring buoys
Field Notes:	Currents can be strong in this area, adjust as needed.
Resources Targeted:	general fish & wildlife resources
Fixed Anchors:	288: N 48° 27.551' / W 122° 50.802', shoreline anchor area near base of dock
Watercourse Description:	Bay, has extreme tidal influence

**Suggested Equipment**

Quantity	Description
800 ft	B2 - Contractor Boom
1 each	Boat(s)
3 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)
1 each	Vac Truck(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: New - visited but not tested 09/15/2008

SJI

1st anchor point.

SJI

2nd anchor point.



N 48° 27' 35.20" W 122° 50' 48.35"

S
09/15/2008

Image-1325: Dock anchor area



N 48° 27' 36.19" W 122° 50' 52.43"

N
09/15/2008

Image-1326: Mooring buoy to help hold boom

Site Contact Information

High Priority - contact immediate or before entering:
Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151,
Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.

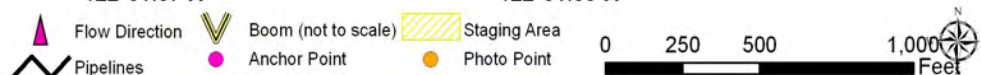
Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 27.506' / W 122° 51.400', Sector Map SJI-7
Strategy Objective:	Exclusion - Keep oil out of cove
Implementation:	Deploy boom across cove opening. If feasible use mooring buoys to help hold boom in place.
Site Safety Note:	Recreational boat traffic, mooring buoys
Field Notes:	Currents can be strong in this area, adjust as needed.
Resources Targeted:	baitfish, sensitive habitat
Fixed Anchors:	302: N 48° 27.499' / W 122° 51.548', W shoreline anchor point, adjust as needed; 303: N 48° 27.499' / W 122° 51.269', E shoreline anchor point, adjust as needed
Watercourse Description:	Cove

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
1 each	Boat(s)
2 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: New - visited but not tested 09/15/2008

SJI

4th anchor point.

SJI



N 48° 27' 33.18" W 122° 51' 17.26"

S
09/15/2008

Image-1351: E anchor area



09/15/2008

Image-1352: W anchor point

Site Contact Information

High Priority - contact immediate or before entering:
Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151,
Contact San Juan County Sheriff at 360-378-4151.
Ask Sheriff's dispatcher to page IOSA.
Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 27.242' / W 122° 55.043', Sector Map SJI-7
Strategy Objective:	Exclusion - Keep oil out of the southeast side of the bay.
Implementation:	Deploy boom in a chevron configuration from the rocky point due east of Buck Island to the second rocky point to the north.
Site Safety Note:	Can have strong currents, winds in the bay. Submerged rocks and shallow areas.
Field Notes:	Verizon cell coverage only, takes about 2-3 hours once on site.
Resources Targeted:	sensitive habitat
Fixed Anchors:	309: N 48° 27.362' / W 122° 55.068', N shoreline anchor point - adjust as needed
Watercourse Description:	Bay, which can have strong currents, and winds

**Suggested Equipment**

Quantity	Description
1500 ft	B2 - Contractor Boom
1 each	Boat(s)
4 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/15/2008

SJI

Overview Davis Bay.

SJI

E anchor point on shore.



N 48° 27' 13.32" W 122° 54' 56.92"

S
09/15/2008

Image-1298: Davis Bay overview.



N 48° 27' 13.32" W 122° 54' 56.92"

E
09/15/2008

Image-1297: SE anchor area

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

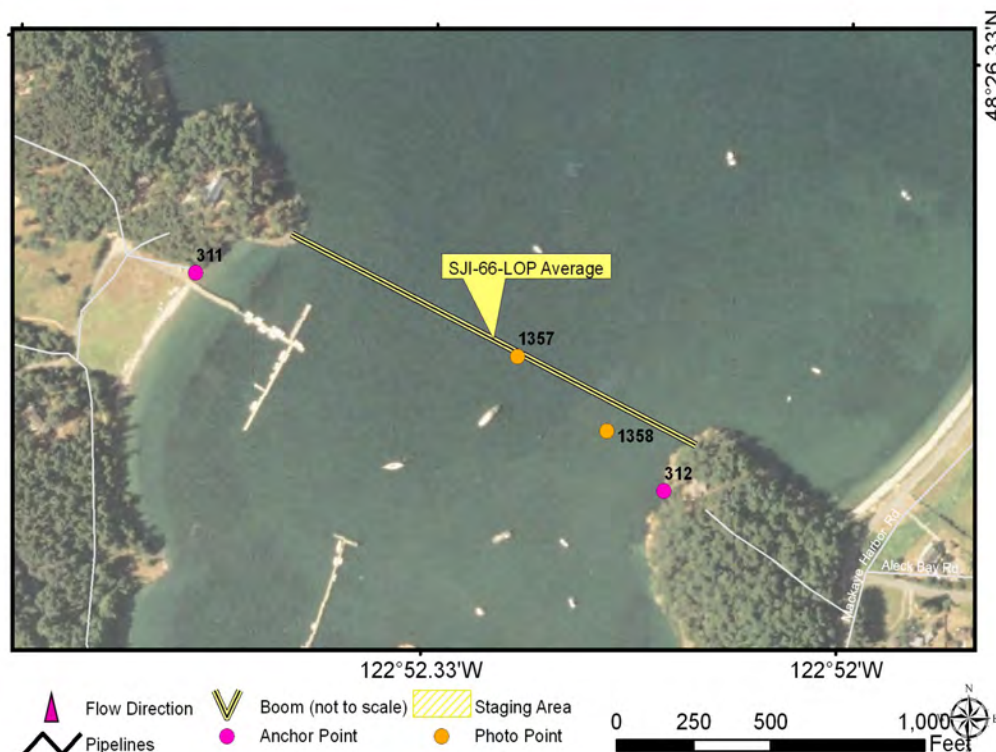
Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 26.188' / W 122° 52.282', Sector Map SJI-7
Strategy Objective:	Exclusion - Keep oil out of the Barlow Bay, if oil is pushed on to beach on eastern side, collect it.
Implementation:	Deploy boom across the opening of Barlow Bay; if oil is pushed to beach to the east, oil can be collected with vac truck. Salmon Point dock provides access and in a location where the water isn't too shallow, as it is much of the time on the shore at the head of the bay. IOSA has property owner contacts for the Salmon Point dock.
Site Safety Note:	Moorage buoys and recreational boat traffic, floating docks
Field Notes:	Verizon cell phone coverage, 3 hour minimum to deploy
Resources Targeted:	baitfish, marine birds, sensitive habitat, waterfowl
Fixed Anchors:	311: N 48° 26.217' / W 122° 52.522', NW shoreline anchor area, adjust as needed; 312: N 48° 26.115' / W 122° 52.141', SE shoreline anchor area, adjust as needed
Watercourse Description:	Bay

**Suggested Equipment**

Quantity	Description
1800 ft	B2 - Contractor Boom
1 each	Boat(s)
4 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/15/2008

SJI

Anchor point.

SJI

E anchor site.



N 48° 26' 10.81" W 122° 52' 15.69"

W
09/15/2008

Image-1357: NW anchor point



N 48° 26' 08.64" W 122° 52' 11.31"

E
09/15/2008

Image-1358: SE anchor point

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 25.913' / W 122° 48.691', Sector Map SJI-7
Strategy Objective:	Exclusion - Keep oil out of the bay.
Implementation:	Deploy boom across bay at a point about half way into the bay. Feasibility depends on the direction and speed of the wind. This site is usually protected and the boom is easy to set.
Site Safety Note:	Moorage buoys and recreational boat traffic.
Field Notes:	Has cell phone coverage, access through BLM gate onto dirt road. Once on site takes about 1.5 hours to deploy.
Resources Targeted:	marine birds, sensitive habitat
Fixed Anchors:	266: N 48° 25.855' / W 122° 48.647', S shoreline anchor area, adjust as needed
Watercourse Description:	Bay, with marsh at tip

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
1 each	Boat(s)
2 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/15/2008

SJI

Overview of bay.



N 48° 25' 52.68" W 122° 48' 41.62"

S
09/15/2008

Image-1296: Overview of bay

SJI

SE anchor point



N 48° 25' 52.36" W 122° 48' 41.47"

NW
09/15/2008

Image-1295: SE anchor area, adjust as needed.

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.

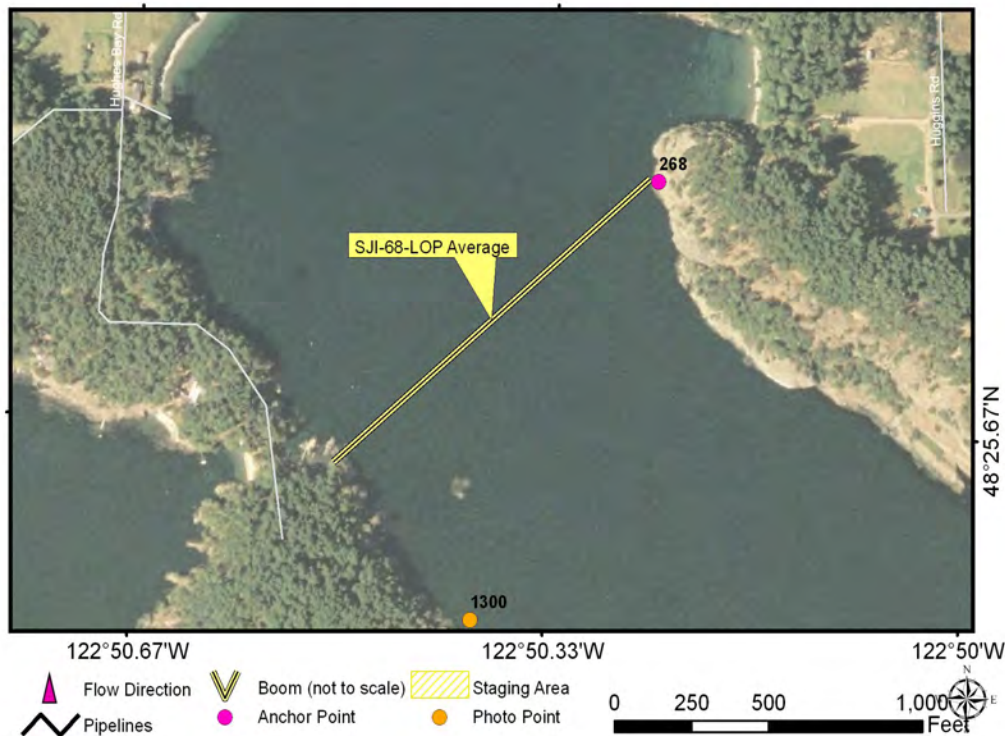
Be sure to provide a way for IOSA personnel to contact you, such as phone number.

BLM SJI contact, (W) 360 468-3754, Nick Teague

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 25.720' / W 122° 50.380', Sector Map SJI-7
Strategy Objective:	Collection, Exclusion - If conditions are favorable keep oil out of the bay, if oil is being forced into bay use site to collect oil.
Implementation:	Deploy boom across the entrance to the bay if conditions are favorable, site is exposed and often rough. With wind from the south or southwest, the boom can be deployed from the west side of the bay entrance to a point at the head of the bay to the north. if there is too much wind exposure for the primary strategy, the boom is pulled north to the mid-section of the head of the bay. This backup strategy would require 1700-2000' of boom.
Site Safety Note:	Rocks on NW side of bay about 40 feet off-shore, and submerged rocks on East side of bay off point.
Field Notes:	Spotty cell phone coverage. Once on site should take about 2 hours to deploy.
Resources Targeted:	marine birds, sensitive habitat
Fixed Anchors:	268: N 48° 25.793' / W 122° 50.249', NW anchor point, adjust as needed
Watercourse Description:	Bay, with two coves

**Suggested Equipment**

Quantity	Description
2000 ft	B2 - Contractor Boom
2 each	Boat(s)
5 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)

Suggested Personnel

2	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/15/2008

SJI

Anchor point on shore.



N 48° 25' 34.20" W 122° 50' 23.48"

S
09/15/2008

Image-1300: Anchor area

SJI

Small beach on south end.



N 48° 25' 34.88" W 122° 51' 26.85"

SE
09/15/2008

Image-1299: SW anchor area, adjust as needed

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 25.587' / W 122° 49.774', Sector Map SJI-7
Strategy Objective:	Exclusion, Collection - If conditions allow, keep oil out of the bay, if not use bay to collect oil.
Implementation:	Deploy boom across the entrance to the bay if conditions are favorable (anchor bolts have been installed), site is exposed and often rough. Currents and wind tend to push oil into the bay. To use the bay for collection, deploy the boom out from each side of the entrance to enhance collection.
Site Safety Note:	W side of bay gets shallow very quickly
Field Notes:	Area often has strong currents and winds, does have cell phone coverage.
Resources Targeted:	marine birds, sensitive habitat
Fixed Anchors:	262: N 48° 25.588' / W 122° 49.632', SE anchor bolt; 263: N 48° 25.650' / W 122° 49.810', NW anchor bolt
Watercourse Description:	Bay, often has very strong currents and winds

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
1 each	Boat(s)
3 each	Danforth(s) or other appropriate anchor

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/15/2008

SJI

Anchor bolt on west rock face



N 48° 25' 39.06" W 122° 49' 48.90"

SW
09/15/2008

Image-1291: NW anchor bolt

SJI

Anchor bolt east rock face.



N 48° 25' 35.50" W 122° 49' 38.37"

SE
09/15/2008

Image-1292: SE anchor bolt

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.

Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 25.566' / W 122° 51.117', Sector Map SJI-7
Strategy Objective:	Exclusion - Keep oil out of the bay.
Implementation:	Deploy boom across the narrowest point at the mouth of the bay. Aleck Bay is the least exposed of the three strategies in this area, and booming is achievable more often than for Hughes and McArdle Bays. IOSA has access to a parking area at the head of the bay (via dirt road).
Site Safety Note:	Moored boats, recreational boat traffic
Field Notes:	Has cell phone coverage, takes about 3 hours to deploy once on site.
Resources Targeted:	marine birds, sensitive habitat
Fixed Anchors:	275: N 48° 25.685' / W 122° 51.029', NE shoreline anchor point; 276: N 48° 25.437' / W 122° 51.196', SW shoreline anchor point, adjust as needed
Watercourse Description:	Bay, relatively protected for this area

**Suggested Equipment**

Quantity	Description
1800 ft	B2 - Contractor Boom
1 each	Boat(s)
8 each	Danforth(s) or other appropriate anchor
8 each	Stake(s)
1 each	Work Boat(s)

Suggested Personnel

2	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/15/2008

SJI

Small beach area northend.



N 48° 25' 34.57" W 122° 51' 26.59"

N
09/15/2008

Image-1310: NE anchor area

SJI

Small beach on south end.



N 48° 25' 34.88" W 122° 51' 26.85"

SE
09/15/2008

Image-1309: SW anchor area

Site Contact Information

High Priority - contact immediate or before entering:

Contact Info., IOSA via Sheriff's Office, (W) 360-378-4151, Contact San Juan County Sheriff at 360-378-4151.

Ask Sheriff's dispatcher to page IOSA.

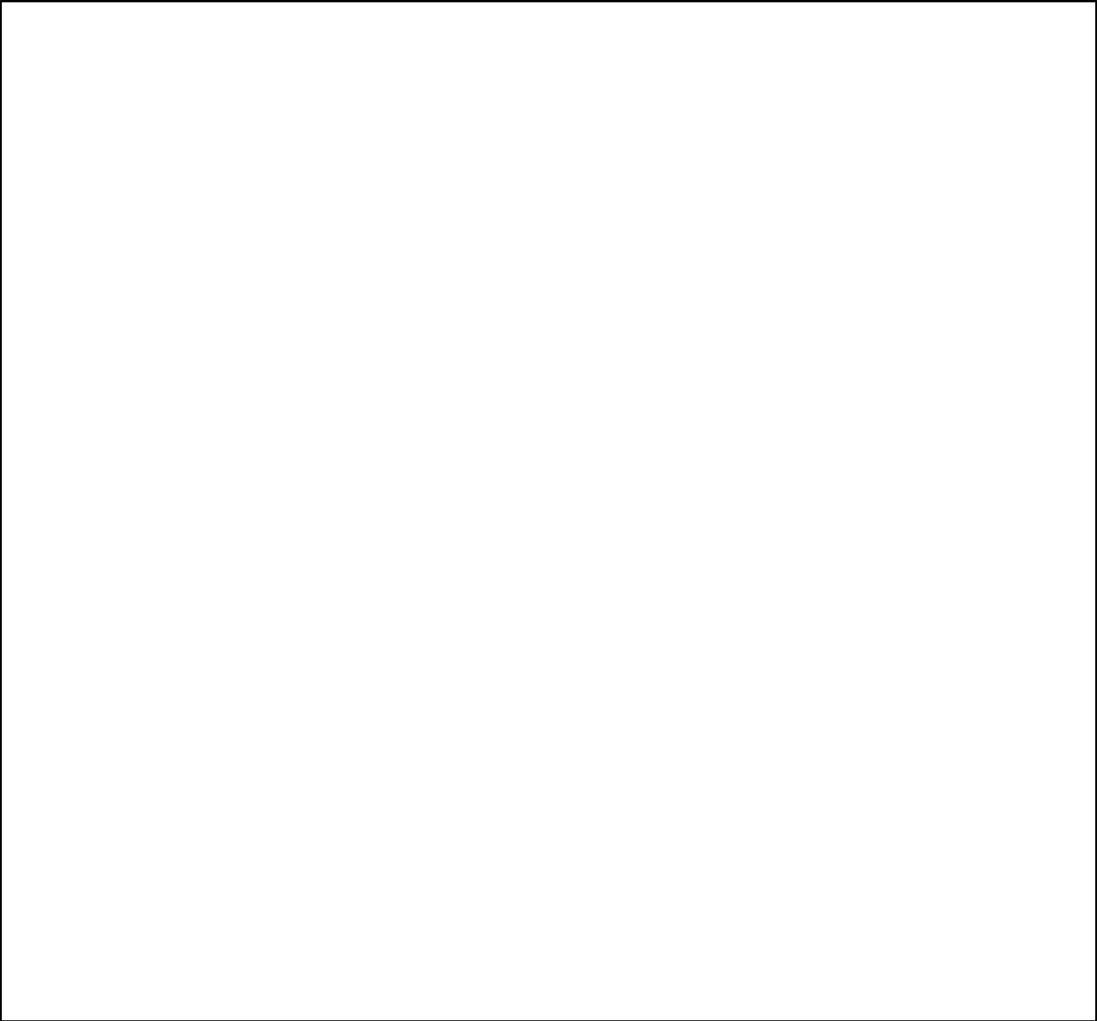
Be sure to provide a way for IOSA personnel to contact you, such as phone number.

Closest Address:**Driving Directions:**

Cannot Drive to Site

APPENDIX C - DETAILED STAGING LOCATIONS AND DESCRIPTIONS

Lat/Long:	N 48° 36.436' / W 123° 9.324', Sector Map SJI-2
Staging Description:	Has cell phone coverage, fuel, and bathrooms. There is a boat ramp right. 1100 ft of boom stored at Roche Harbor.
Site Contacts:	Responsible party or alternate contact: Roache Harbor, W 800 586-3590

	Closest Address: 	Strategy Sites Served: SJI-25-SJI(Marine)
	Driving Directions: Cannot Drive to Site	

Lat/Long:	N 48° 31.161' / W 123° 0.847', Sector Map SJI-3
Staging Description:	Site is accessible by road or water; has boat ramp, good cell phone coverage. Good location for vac truck. Note: beach to the E is known to collect debris during storms, might be a good site for additional collection efforts if oil is present.
Site Contacts:	Responsible party or alternate contact: Port of Friday Harbor, W 360-378-2688, M 360-378-6114

	Closest Address:	Strategy Sites Served: SJI-59-SJI(Marine)
	Driving Directions: Cannot Drive to Site	

Lat/Long:	N 48° 31.200' / W 123° 0.000', Sector Map SJI-3
Staging Description:	Marina has fuel, water, bathrooms. Site is close to ferry terminal; has good cell phone coverage, restaurants and other stores are near-by. In a spill event, check with Friday Harbor Labs for possible accommodations etc..
Site Contacts:	Responsible party or alternate contact: Friday Harbor Staging Area - Albert Jensen & Son Shipyard, H 360-378-5101 Friday Harbor Laboratory, W 206-543-1484

Closest Address:**Strategy Sites Served:**

SJI-FH(Marine)

Driving Directions:

Cannot Drive to Site

NORTHWEST AREA COMMITTEE

NORTH PUGET SOUND (NPS)

Response Strategies & Priorities

CHAPTER 4b

March 12, 2009

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4.0 GENERAL PROTECTION/COLLECTION STRATEGIES

4.1 Chapter Overview

Geographic Response Plans (GRPs) are:

- Triggered in the first hours (usually 6-24) following an oil spill.
- Targeted at shielding sensitive resources that lie close to the reported spill source.
- Just one method to minimize spill impacts, they can occur concurrently with other efforts, including skimming.

On-site Considerations

Before deploying a GRP strategy, responders should ask:

- Are conditions safe?
- Has initial control and containment been sufficiently achieved?
- Underflow dams and culvert blocks require Emergency Hydraulic Project Approval (HPA) prior to implementation. These response tactics will reduce, interrupt, or divert the water flow of streams that can be damaging to sensitive fish life and habitat. Responders must receive Emergency HPA from the Washington State Department of Fish and Wildlife **before** using culvert blocks and underflow dams. The Hydraulic Code (RCW 75-20.11-160) provides for immediate verbal approval in emergency situations. For emergency HPA contact 360-534-8233 (24 hour pager).

During the initial GRP-response phase, responders should be aware that:

- Challenging field conditions may require them to modify strategies, and later notify the command center.
- Certain strategies may call for access points or staging areas that are not easily reached at all times of the year or in all conditions.
- All strategies were designed for use with persistent, heavy oils and may not be suitable for other petroleum products or hazardous materials.
- Boom deployment may require around-the-clock tending and/or precise anchoring techniques. As a rule of thumb, use 4 anchors per 1000 ft.

- The sequence of deployments is pre-determined in a booming priority table. The appropriate table is found by finding which “Potential Spill Origin” point (orange boxes on the maps) lies closest to the actual (or reported) spill site.

After considerably more is known about the spill and surrounding area:

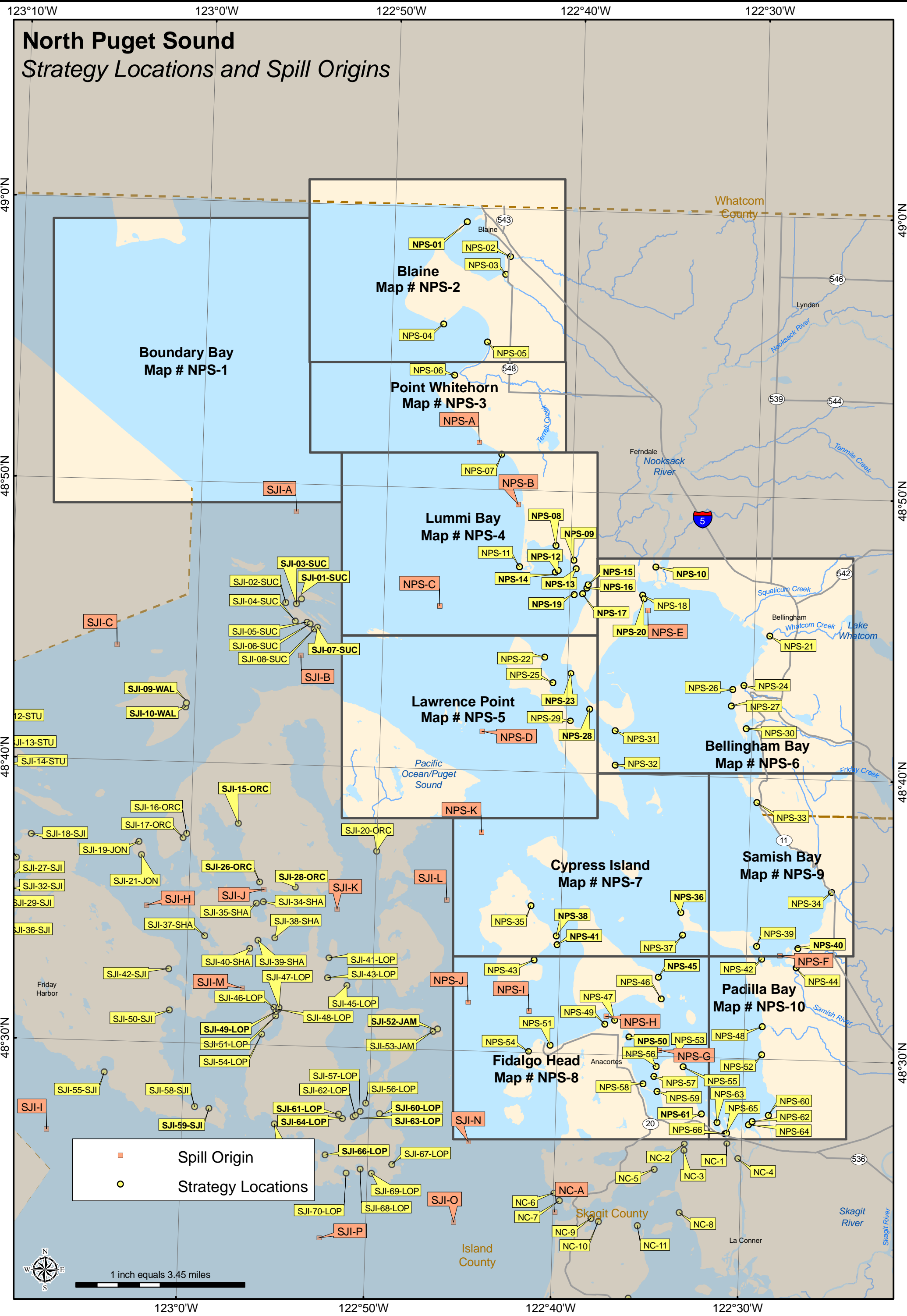
- Other techniques for recovery or containment (skimming, in situ burning, or dispersants) may be applied.
- GRP strategies are likely to be refined as a result of lessons learned.

Marine booming strategy sites are numbered from North to South.

The average in the strategy label indicates strategy is for average conditions.

4.2 Strategy and Access Locations Overview

Marine booming strategy sites are numbered from North to South





4.3 Strategy Priorities

The sequence of deployments is pre-determined in a booming priority table. The appropriate table is found by finding which 'Potential Spill Origin' point (orange boxes on the maps) lies closest to the actual (or reported) spill site.

Table 4-1: NPS-A, Cherry Point, BP Refinery, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	NPS-11	4- 19	4- 36	4- 94
2	NPS-12	4- 19	4- 37	4- 96
3	NPS-14	4- 19	4- 39	4- 100
4	NPS-19	4- 19	4- 42	4- 110
5	NPS-17	4- 19	4- 41	4- 106
6	NPS-16	4- 19	4- 41	4- 104
7	NPS-15	4- 19	4- 40	4- 102
8	NPS-13	4- 19	4- 38	4- 98
9	NPS-08	4- 19	4- 34	4- 88
10	NPS-09	4- 19	4- 35	4- 90

Table 4-2: NPS-B, ConocoPhillips-Ferndale Refinery, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	NPS-11	4- 19	4- 36	4- 94
2	NPS-12	4- 19	4- 37	4- 96
3	NPS-14	4- 19	4- 39	4- 100
4	NPS-19	4- 19	4- 42	4- 110
5	NPS-17	4- 19	4- 41	4- 106
6	NPS-16	4- 19	4- 41	4- 104
7	NPS-15	4- 19	4- 40	4- 102
8	NPS-13	4- 19	4- 38	4- 98
9	NPS-08	4- 19	4- 34	4- 88
10	NPS-09	4- 19	4- 35	4- 90

Table 4-3: NPS-C, N of Matia & Lummi Islands, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	NPS-12	4- 19	4- 37	4- 95
2	NPS-14	4- 19	4- 39	4- 99
3	NPS-19	4- 19	4- 42	4- 109
4	NPS-17	4- 19	4- 41	4- 105
5	NPS-16	4- 19	4- 41	4- 103
6	NPS-15	4- 19	4- 40	4- 101
7	NPS-13	4- 19	4- 38	4- 97
8	NPS-08	4- 19	4- 34	4- 87
9	NPS-09	4- 19	4- 35	4- 89

Table 4-4: NPS-D, Off the SE corner of Clark Island, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	NPS-35	4- 23	4- 50	4- 141
2	NPS-43	4- 24	4- 54	4- 157
3	NPS-38	4- 23	4- 52	4- 147
4	NPS-41	4- 23	4- 53	4- 153
5	SJI-53-JAM	James Island	see SJI GRP	see SJI GRP
6	SJI-52-JAM	James Island	see SJI GRP	see SJI GRP

Table 4-5: NPS-E, Mouth of the Nooksack River, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	NPS-20	4- 22	4- 43	4- 112
2	NPS-18	4- 22	4- 42	4- 108
3	NPS-10	4- 22	4- 36	4- 92

Table 4-6: NPS-F, Mouth of the Samish River, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	NPS-44	4- 27	4- 55	4- 160
2	NPS-40	4- 26	4- 53	4- 152
3	NPS-39	4- 26	4- 52	4- 150
4	NPS-42	4- 27	4- 54	4- 156
5	NPS-34	4- 26	4- 50	4- 140

Table 4-7: NPS-G, March Point Refineries, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	NPS-59	4- 24	4- 63	4- 190
2	NPS-58	4- 24	4- 62	4- 188
3	NPS-55	4- 24	4- 61	4- 182
4	NPS-56	4- 24	4- 61	4- 184
5	NPS-57	4- 24	4- 62	4- 186
6	NPS-46	4- 24	4- 56	4- 164
7	NPS-47	4- 24	4- 56	4- 166
8	NPS-49	4- 24	4- 57	4- 170
9	NPS-51	4- 24	4- 58	4- 174

Table 4-8: NPS-H, E. Entrance Guemes Channel, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	NPS-59	4- 24	4- 63	4- 190
2	NPS-58	4- 24	4- 62	4- 188
3	NPS-46	4- 24	4- 56	4- 164
4	NPS-51	4- 24	4- 58	4- 174
5	NPS-56	4- 24	4- 61	4- 184
6	NPS-57	4- 24	4- 62	4- 186
7	NPS-54	4- 24	4- 60	4- 180
8	NPS-47	4- 24	4- 56	4- 166
9	NPS-49	4- 24	4- 57	4- 170

Table 4-9: NPS-I, W entrance to Guemes Channel, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	NPS-51	4- 24	4- 58	4- 173
2	NPS-54	4- 24	4- 59	4- 179
3	NPS-43	4- 24	4- 54	4- 157
4	NPS-35	4- 23	4- 50	4- 141
5	NCPS strategy for Urchin Rocks,		see NCPS GRP	see NCPS GRP
6	NCPS strategy for Bowman Bay		see NCPS GRP	see NCPS GRP
7	NCPS strategy for Cornet Bay		see NCPS GRP	see NCPS GRP
8	SJI 53-JAM	James Island	see SJI GRP	see SJI GRP
9	SJI 52-JAM	James Island	see SJI GRP	see SJI GRP
10	SJI 67-LOP	Watmough Bay	see SJI GRP	see SJI GRP

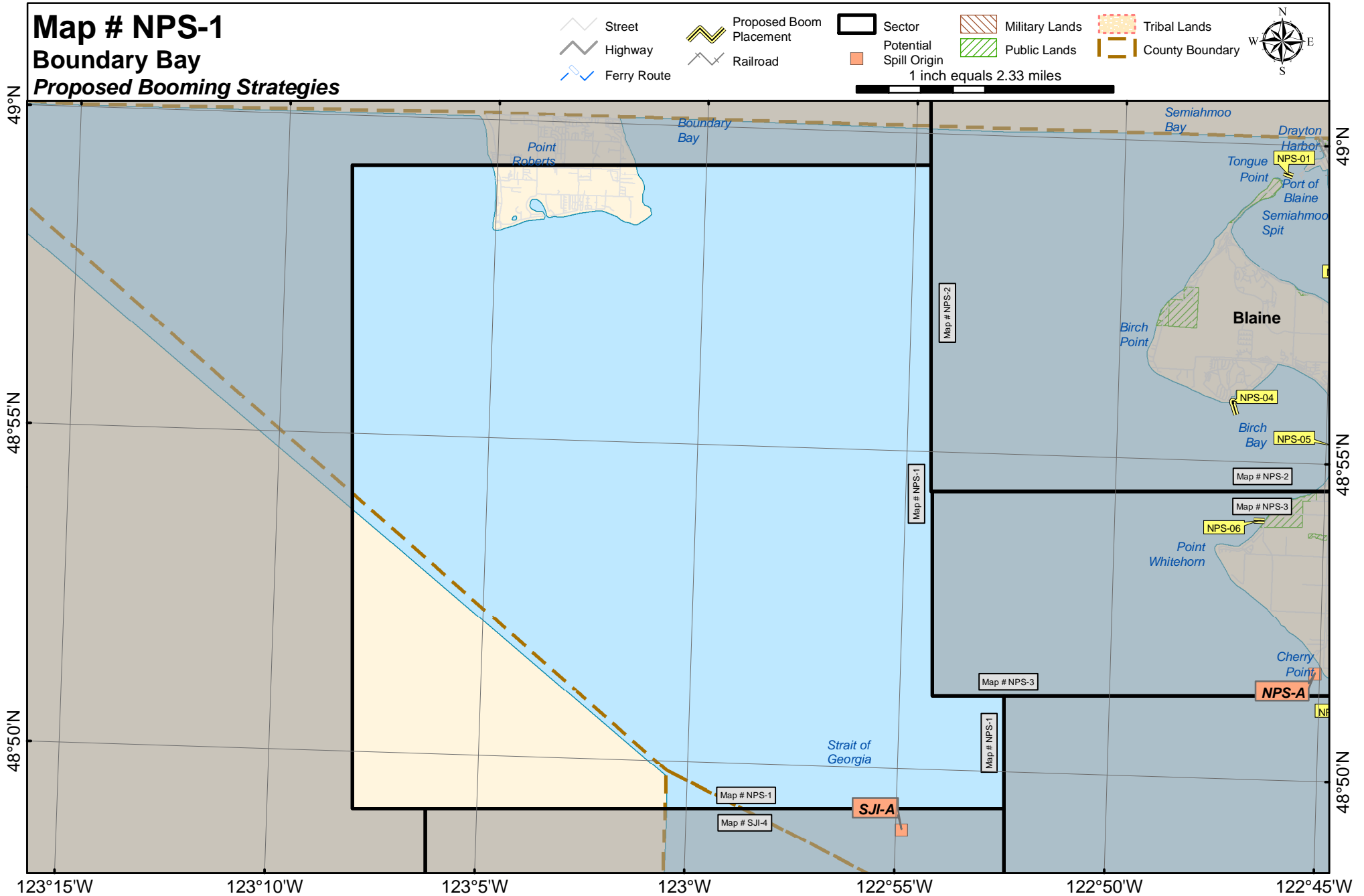
Table 4-10: NPS-J, E of James Island, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
	October-March	October-March	October-March	October-March
1	SJI 53-JAM James Island, see SJI GRP			
2	SJI 52-JAM James Island, see SJI GRP			
3	SJI 67-LOP Watmough Bay, see SJI GRP			
4	SJI 69-LOP McArdle Bay, see SJI GRP			
5	SJI 68-LOP Hughes Bay, see SJI GRP			
6	SJI 70-LOP Aleck Bay, see SJI GRP			
7	NPS-51	4- 24	4- 58	4- 174
8	NPS-54	4- 24	4- 60	4- 180
	April-September	April-September	April-September	April-September
1	SJI 53-JAM James Island, see SJI GRP			
2	SJI 52-JAM James Island, see SJI GRP			
3	NPS-51	4- 24	4- 58	4- 174
4	NPS-54	4- 24	4- 60	4- 180
5	NCPS strategy for Urchin Rocks, see NCPS GRP			
6	NCPS strategy for Bowman Bay, see NCPS GRP			
7	NCPS strategy for Cornet Bay, see NCPS GRP			
8	SJI 67-LOP Watmough Bay, see SJI GRP			

Table 4-11: NPS-K, NW Corner of Cypress Island, Potential Spill Origin Booming Priority

Booming Priority	Strategy Number	Sector Map Page Number	Sector Matrix Page Number	Strategy Details Page Number
SOURCE CONTROL AND CONTAINMENT ARE ALWAYS PRIORITY ONE				
1	NPS-51	4- 24	4- 58	4- 173
2	NPS-54	4- 24	4- 59	4- 179
3	NPS-43	4- 24	4- 54	4- 157
4	NPS-35	4- 23	4- 50	4- 141
5	SJI 53-JAM James Island, see SJI GRP			
6	SJI 52-JAM James Island, see SJI GRP			
7	NCPS strategy for Urchin Rocks, see NCPS GRP			
8	NCPS strategy for Bowman Bay, see NCPS GRP			
9	NCPS strategy for Cornet Bay, see NCPS GRP			
10	SJI 67-LOP Watmough Bay, see SJI GRP			

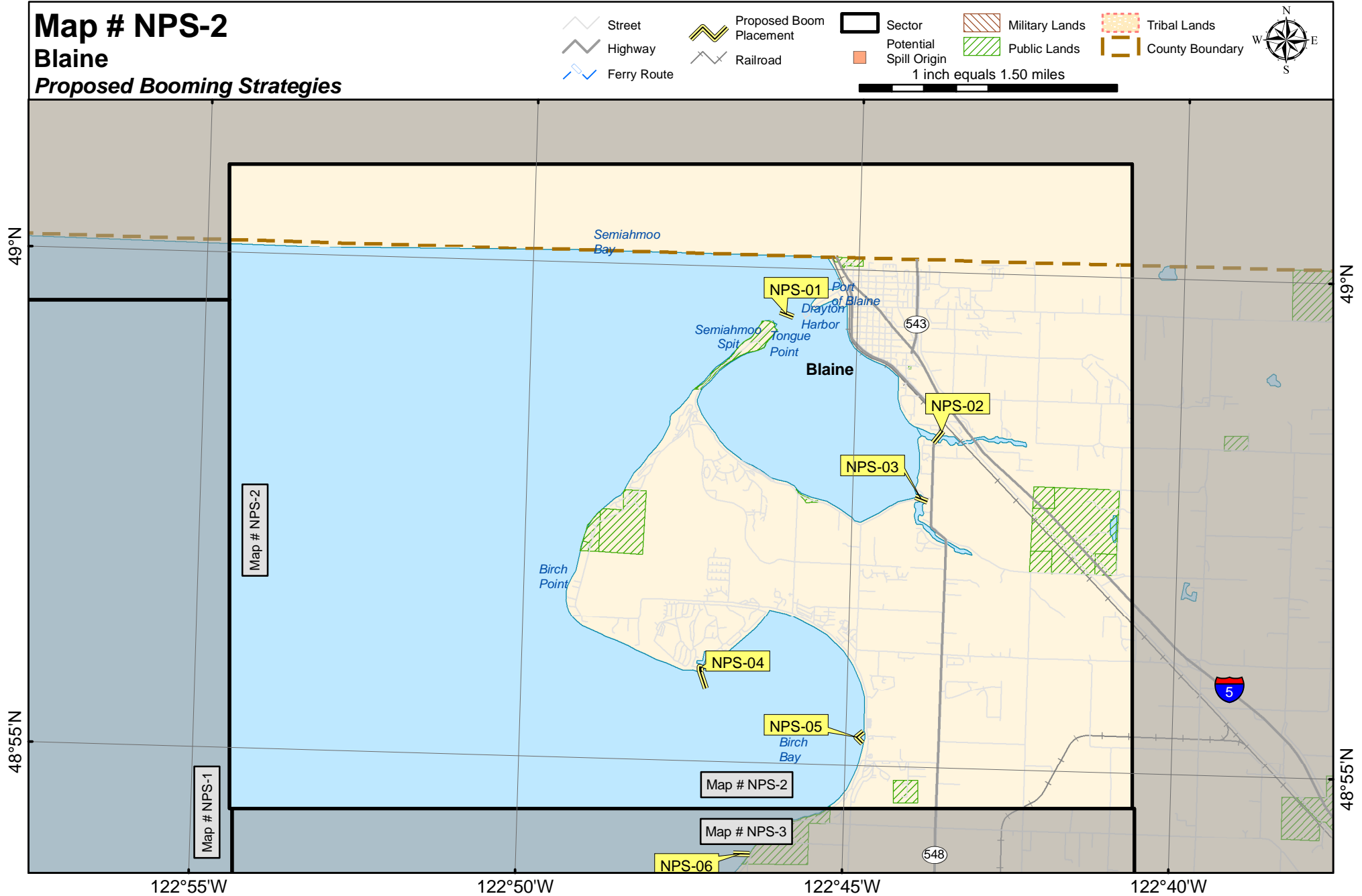
4.4 Proposed Booming and Collection Strategies - Maps



Map # NPS-2

Blaine

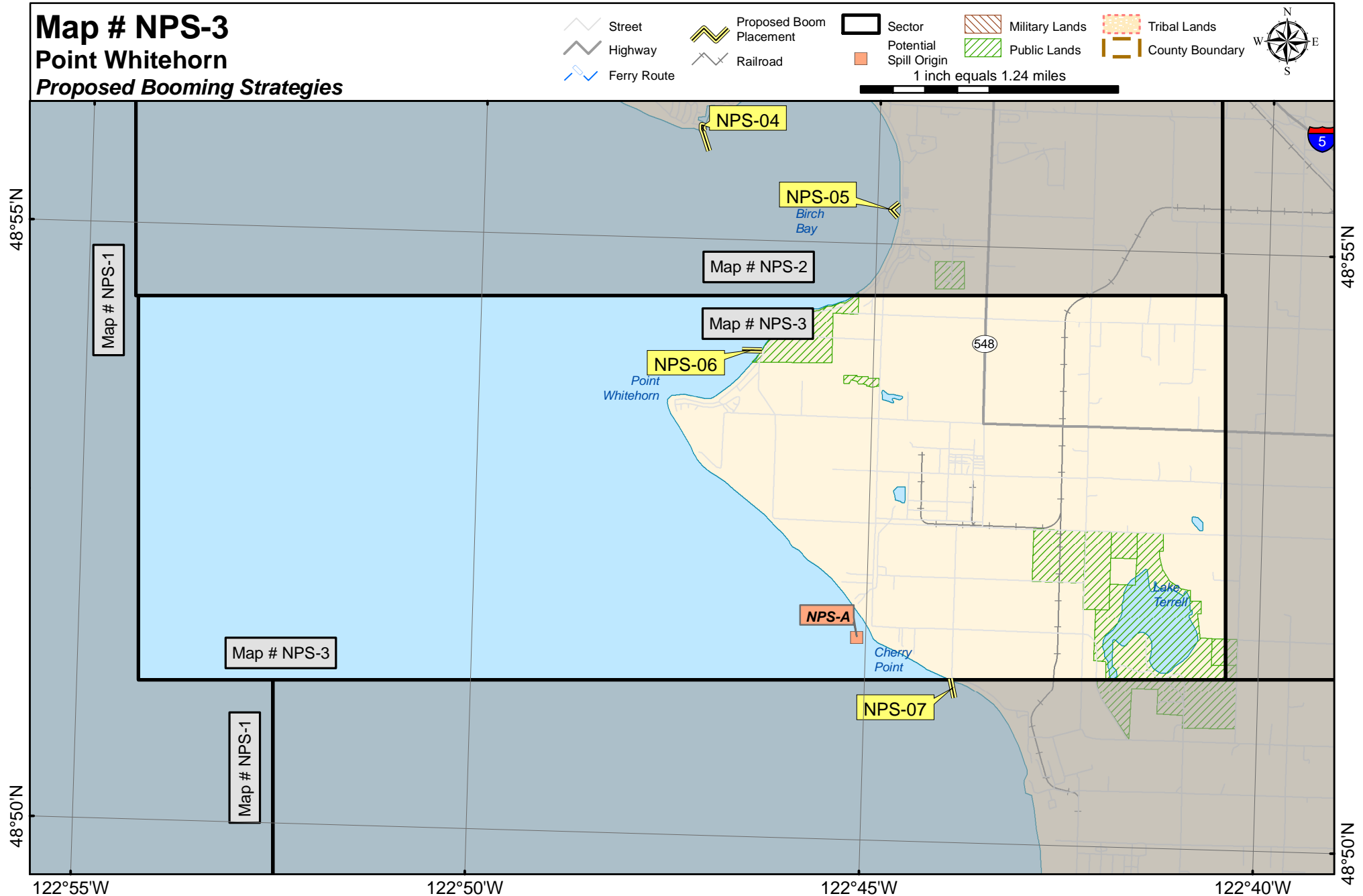
Proposed Booming Strategies



Map # NPS-3

Point Whitehorn

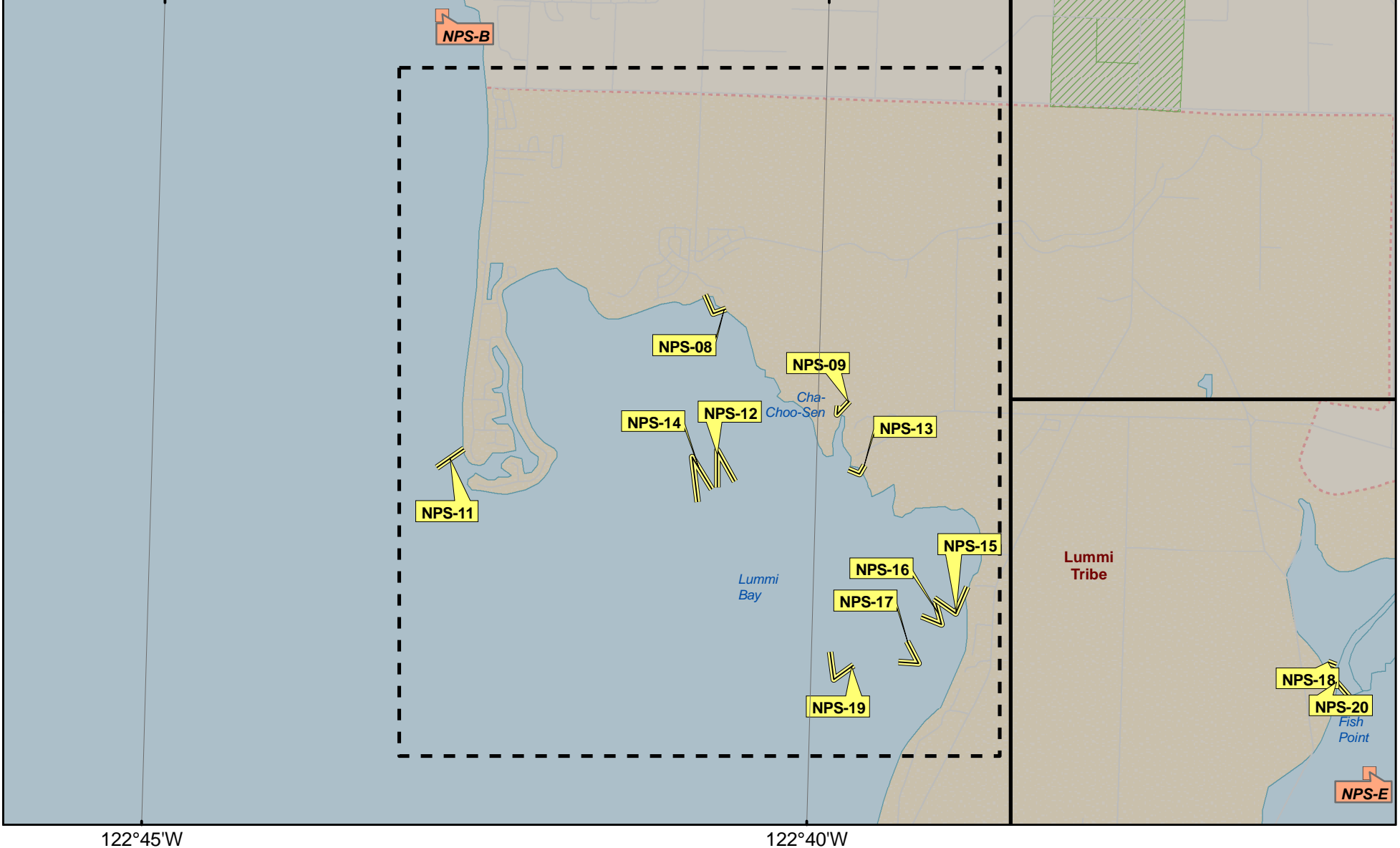
Proposed Booming Strategies



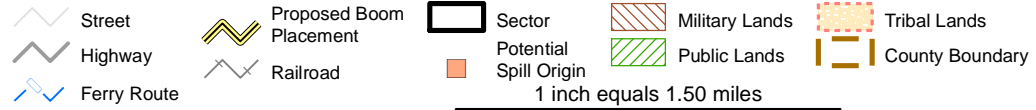
Lummi Pond

Inset Level Map

Proposed Booming Strategies



Proposed Booming Strategies



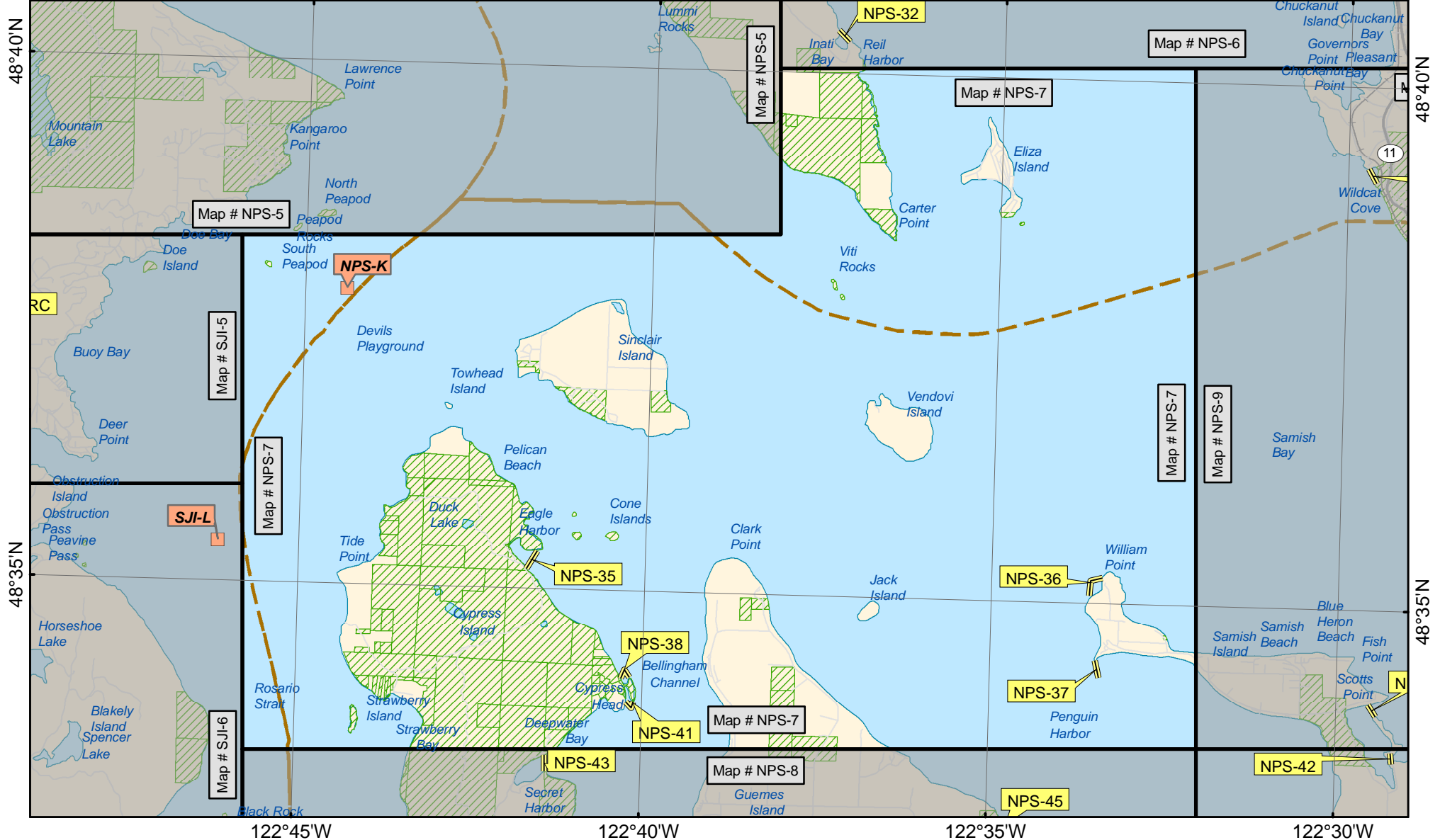
Map # NPS-6

Bellingham Bay

Proposed Booming Strategies



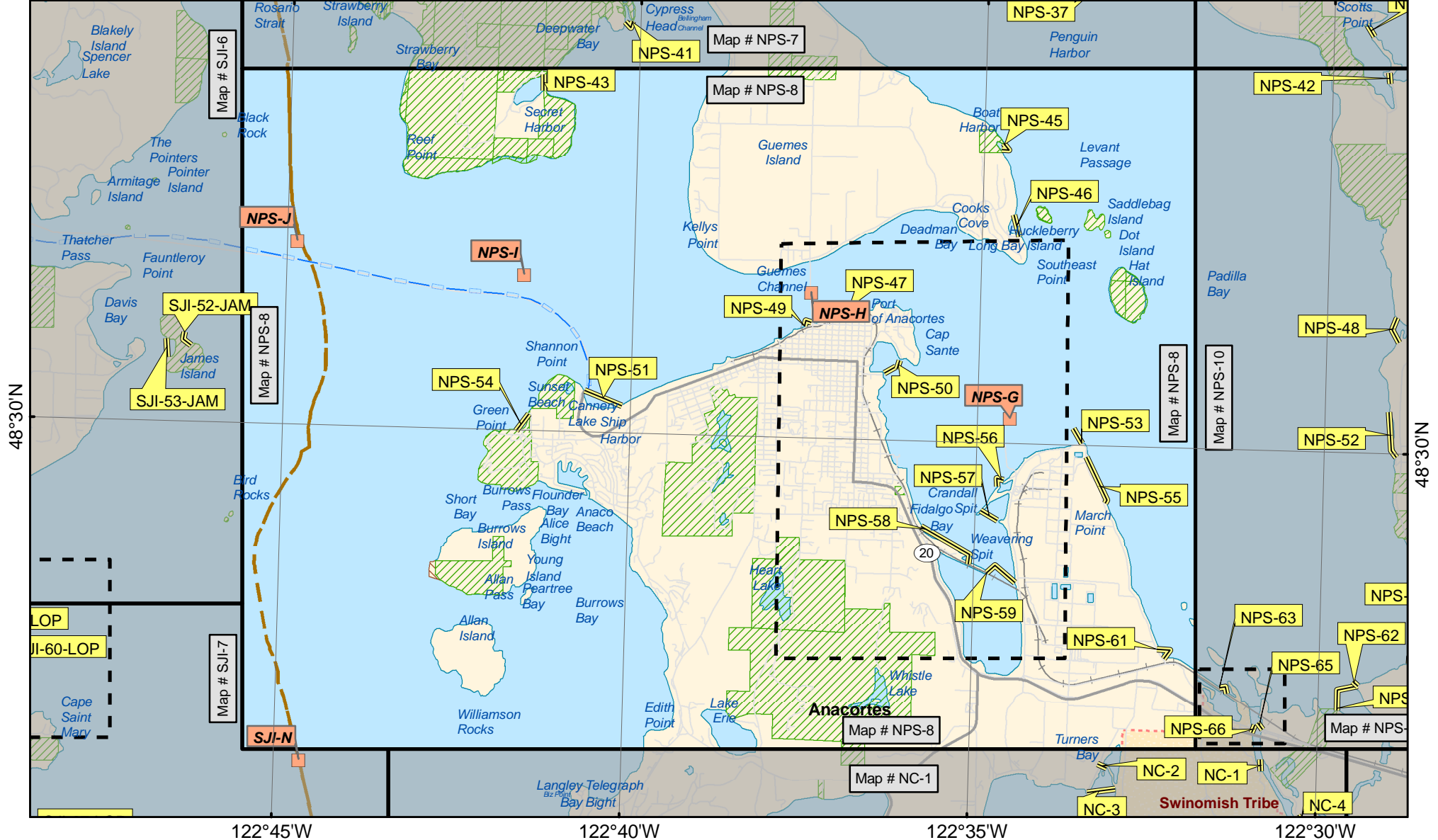
Map # NPS-7 Cypress Island Proposed Booming Strategies



Map # NPS-8

Fidalgo Head

Proposed Booming Strategies



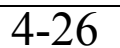
Fidalgo Spit Bay

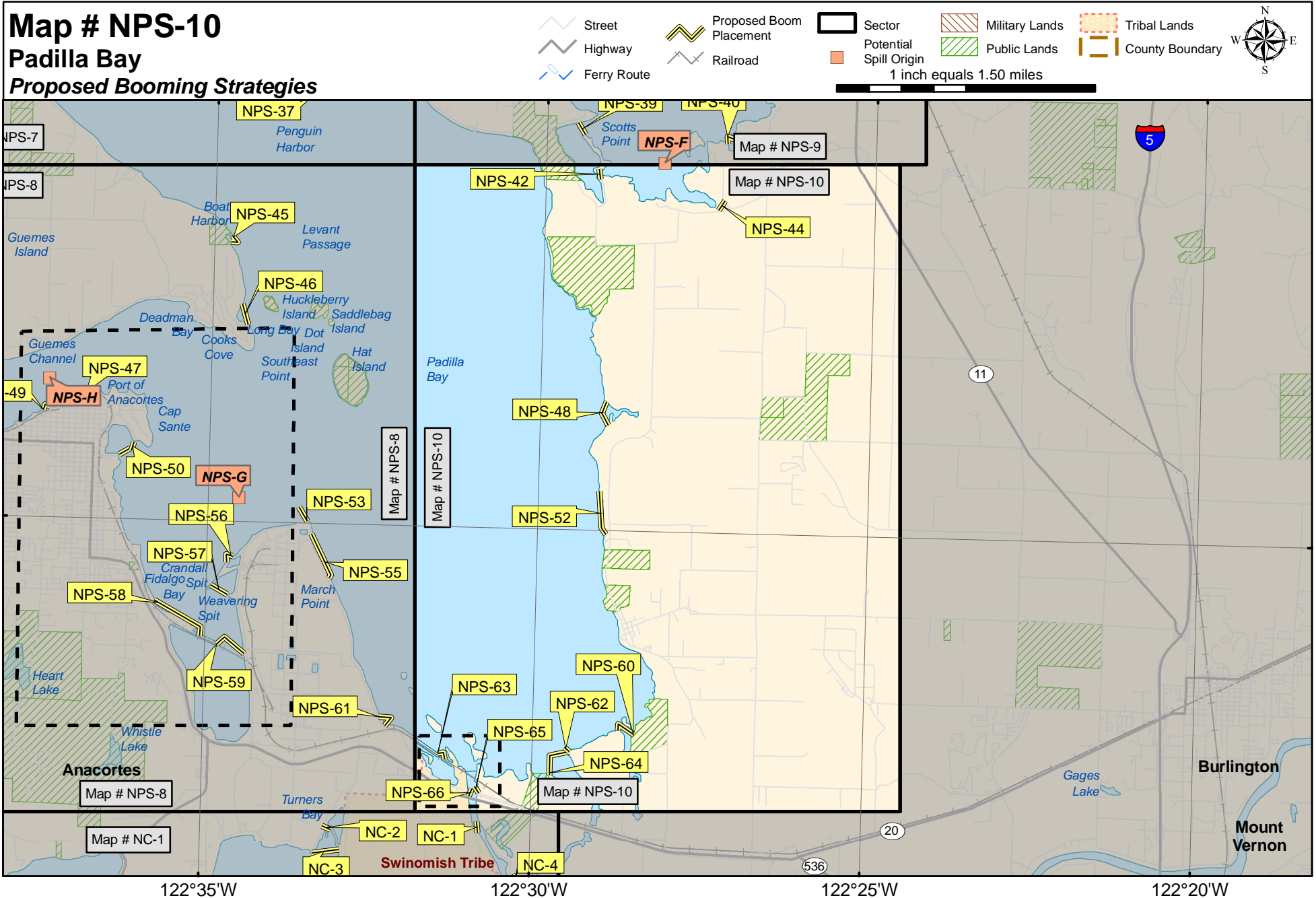
Inset Level Map

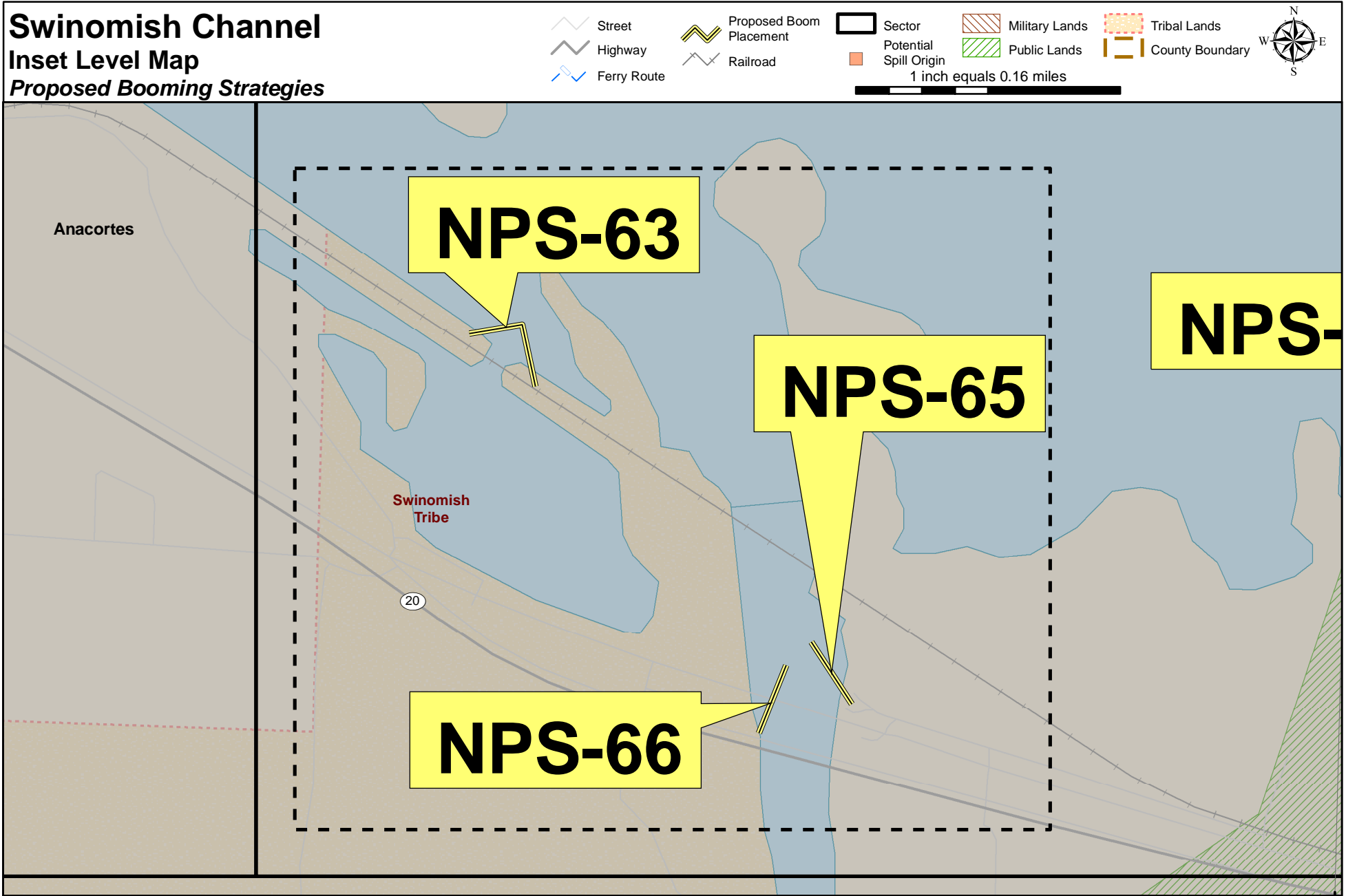
Proposed Booming Strategies



Proposed Booming Strategies







4.5 Proposed Booming and Collection Strategies - Matrices

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-01	Visited and Not Tested 09/16/2008	Drayton Harbor Entrance N 48° 59.540' W 122° 46.097' map page 4-17 Chart #: 18421	Collection, exclusion - Keep oil out of Drayton Harbor, collect oil if possible.	1000ft B2 - Contractor Boom	Deploy boom at an angle out from the Blaine small boat harbor breakwater to collect oil moving along the shore; adjust angle based on direction of oil movement. Area is vac truck accessible. Additional legs of boom maybe needed depending on real-time conditions.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0038	general fish & wildlife resources, shellfish
NPS-02	Visited and Not Tested 07/30/2008	Dakota Creek N 48° 58.345' W 122° 43.717' map page 4-17 Chart #: 18421	Exclusion, collection - Keep oil from moving up creek, if oil is present collect.	500ft B2 - Contractor Boom	At high tide will need small work boat to deploy boom across creek at an angle. Other times may be able to deploy with line and bridge. Site is vac truck accessible, may need booster pump and extra hose. Deploy boom at an angle, adjust based on real-time conditions.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0047	salmonids (anadromous), shellfish

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-03	Visited and Not Tested 07/30/2008	California Creek N 48° 57.711' W 122° 43.946' map page 4-17 Chart #: 18421	Collection, exclusion - Keep oil from moving up creek.	300ft B2 - Contractor Boom	Deploy boom at an angle across creek under the bridge on Drayton Harbor Road to collect on the southeast side of bridge. Best access on nw side of bridge. Should be able to use lines and bridge to deploy without a boat. If oil present, vac truck should be able to collect, but will need hose and booster pump. Vac truck must remain on road or hardened surface.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0062	salmonids (anadromous), sensitive habitat - has been very productive historically, shellfish

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-04	Visited and Not Tested 07/30/2008	Birch Bay Village Marina N 48° 55.888' W 122° 47.225' map page 4-17 Chart #: 18421	Collection, exclusion - Keep oil off shoreline on Birch Point, collect oil if possible.	1600ft B2 - Contractor Boom	Deploy 1000' of boom at an angle to collect oil, adjust angle based on spill origin point. Loop additional 600 feet of boom into marina entrance to protect shoreline and create collection site. Site is vac truck accessible. Vac truck must remain on road or hardened surface. Contact immediately or before entering: 24 Hour Number, Birch Bay Community, (W) 360 371-7644	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0122	general fish & wildlife resources
NPS-05	Visited and Not Tested 07/30/2008	Terrell Creek N 48° 55.294' W 122° 44.830' map page 4-17 Chart #: 18421	Exclusion, collection - Keep oil out of creek, if oil present may be able to collect with vac truck.	300ft B2 - Contractor Boom	Deploy boom as chevron at creek mouth. Can be deployed from land at low tides. Vac truck must remain on road or hardened surface.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0135	salmonids (anadromous)

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-06	Visited and Not Tested 07/30/2008	Point Whitehorn (inside Birch Bay) N 48° 54.080' W 122° 46.549' map page 4-18 Chart #: 18421	Collection - Keep oil out of inner Birch Bay.	1000ft B2 - Contractor Boom	Deploy boom at an angle out from beach at state park boat ramp to collect oil moving around Pt. Whitehorn. Adjust angle based on real-time conditons. Need +5 tide to use for collection. Area boat ramp requires a +6 tide to be used. Takes about 2 hours once on site. Vac truck must remain on road or hardened surface.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0143	baitfish, general fish & wildlife resources, waterfowl, sensitive habitat
NPS-07	Visited and Not Tested 07/31/2008	End of Gulf Road N 48° 51.296' W 122° 43.882' map page 4-19 Chart # 18431	Collection - Prevent oil from moving up beach.	1000ft B2 - Contractor Boom	Deploy boom from beach outward at an angle to collect oil moving along beach. Area is a natural collection point, primarily for oil from the south. Area subject to extreme adverse weather that may prevent deployment of boom. All heavy equipment must remain on road or hardened surface.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0166	sensitive habitat - has been historically very productive, baitfish, waterfowl, general fish & wildlife resources

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-08	Visited and Not Tested 07/30/2008	Sandy Point Tide Gates N 48° 48.113' W 122° 40.832' map page 4-19 Chart# 18421	Exclusion - Keep oil out of slough	400ft B2 - Contractor Boom	There are two options: block-off tide gates, if that is not possible deploy boom in a chevron in front of the tide gates. To deploy the chevron will require a skiff and 3 people. Piling in the area could be used to help hold the boom in place. Contact immediately or before entering: Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0200	tribal lands/resources, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-09	Visited and Not Tested 07/30/2008	Lummi River N 48° 47.605' W 122° 39.843' map page 4-19	Exclusion, collection - Keep oil out of river, collect oil if possible.	400ft B3 - River Boom, or other appropriate type	Deploy boom in a chevron, adjust angle and anchors based on real-time conditions. At tides below +2.5 should be able to deploy without a boat. But mud can be sticky. Site is vac. Truck accessible. Contact immediately or before entering: Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0204	tribal lands/resources, salmonids (anadromous), sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-10	Visited and Not Tested 07/30/2008	Water Intake Nooksack River N 48° 47.452' W 122° 35.409' map page 4-22	Notification - Keep oil from entering water intake.		Provide notice, Lummi Nation to put eyes on the water, if oil observed pump to be shut down. Contact immediately or before entering: Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept. Lummi Nation Sea Ponds, Seaponds Hatchery Manager Bob Hall (360-384-2221) Natural Resources Department Executive Director Merle Jefferson (360-410-1706)	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0394	water intakes
NPS-11	Visited and Not Tested 07/31/2008	Sandy Point N 48° 47.324' W 122° 42.756' map page 4-19 Chart #: 18424	Collection - Collect oil	1000ft B2 - Contractor Boom	Deploy boom from north shore of Sandy Point Shores Marina and anchor to shore for collection. Adjust angle based on real-time conditions. Depending on conditions may collect oil by boat or vac truck.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0187	resident fish, tribal lands/resources

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-12	New - visited but not tested 07/29/2008	Lummi Pond NW -1 N 48° 47.314' W 122° 40.670' map page 4-19 Chart # 18421	Exclusion - Keep oil out of pond.	50ft Snare Boom, 50ft Sorbent Boom	Gate and raceway at this site is in good condition. The leakage of water and/or oil during the flood tide could be controlled with sorbents placed inside and across raceway. Hang sorbent, booms, sweeps or snare lines between weighted droplines to hold ends to vertical walls. Contact immediately or before entering: Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0208	tribal lands/resources, shellfish

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-13	Visited and Not Tested 07/30/2008	Smuggler Slough Tide Gates N 48° 47.310' W 122° 39.707' map page 4-19	Exclusion - Keep oil out of slough.	50ft Sorbent Boom	Block the five tide gates with plywood or sorbent boom. Note: no need to deploy on outgoing tide cycle. Contact immediately or before entering: Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0204	tribal lands/resources, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-14	Visited and Not Tested 07/30/2008	Lummi Pond NW -2 N 48° 47.262' W 122° 40.838' map page 4-19 Chart # 18421	Exclusion - Keep oil out of pond.	400ft B2 - Contractor Boom	Gates and raceways are in poor condition, as they deteriorate successful exclusion of oil from the Sea Pond Aquaculture Facility via this structure will be increasingly difficult, due to increasing flow rate. Deployment of a chevroned exclusion boom would help deflect oil away from the gates on flood tide. The substantial pressure against the boom would require solid shore anchor points, and robust anchor gear for the offshore apex. Contact immediately or before entering: Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0208	special protection area, tribal lands/resources

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-15	Visited and Not Tested 07/28/2008	Lummi Pond SE-1 N 48° 46.655' W 122° 38.998' map page 4-19 Chart # 18421	Exclusion - Keep oil out of pond.	200ft B2 - Contractor Boom	Small gate with broken concrete rip-rap at the mouth. Deploy 200' chevron deflection boom to divert oil on flood tide away from gate. Avoid fouling boom on broken concrete. Anchor boom ends to shore anchors. Contact immediately or before entering: Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0217	tribal lands/resources, shellfish

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-16	Visited and Not Tested 07/29/2008	Lummi Pond SE-2 N 48° 46.590' W 122° 39.123' map page 4-19 Chart # 18421	Exclusion - Keep oil out of pond.		Gate at fish hatchery is in good working condition. Fabricate gate with underflow pipe to stop oil, yet let water flow each way. Or close raceway completely Contact immediately or before entering: Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0216	tribal lands/resources, shellfish
NPS-17	Visited and Not Tested 07/29/2008	Lummi Pond SE-3 N 48° 46.432' W 122° 39.245' map page 4-19 Chart # 18421	Exclusion - Keep oil out of pond.	600ft B2 - Contractor Boom	Install Shore anchors either side of tidal gates. Anchor 500'-600' boom in chevron seaward to deflect oil away from gates. (May require substantial off shore anchors to hold chevron) Contact immediately or before entering: Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0215	tribal lands/resources, shellfish

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-18	Visited and Not Tested 07/30/2008	Kwina Slough (S entrance) N 48° 46.409' W 122° 36.038' map page 4-22 Chart #: 18424	Exclusion, collection - Keep oil out of slough, and collect if possible.	300ft B2 - Contractor Boom	Deploy boom at an angle across south entrance to slough. Adjust angle based on spill origin point to collect at shore. Vac truck access at Native American Shellfish, 3622 Lummi Shore Road. Vac truck must remain on road or hardened surface. Contact immediately or before entering: Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0394	salmonids (anadromous), sensitive habitat
NPS-19	Visited and Not Tested 07/29/2008	Lummi Pond SE-4 N 48° 46.322' W 122° 39.740' map page 4-19 Chart # 18421	Exclusion - Keep oil out of pond.		Slots in raceway are in good condition. Close off completely with solid gate. Contact immediately or before entering: Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0209	tribal lands/resources, shellfish

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-20	Visited and Not Tested 07/30/2008	Mouth of Nooksack N 48° 46.297' W 122° 35.997' map page 4-22	Collection, exclusion - Keep oil from going up slough and river, collect oil if possible	500ft B2 - Contractor Boom	Deploy boom at an angle to allow for collection along shore. Adjust angle and anchors based on real-time conditions. Area is vac truck accessible. Vac truck must remain on road or hardened surface. Contact immediately or before entering: Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0394	tribal lands/resources, salmonids (anadromous), sensitive habitat
NPS-21	Visited and Not Tested 07/31/2008	Whatcom Creek N 48° 45.154' W 122° 29.098' map page 4-22 Chart #: 18424	Exclusion - Keep oil from moving up into or out of the mouth of Whatcom Creek.	300ft B2 - Contractor Boom	Deploy boom at an angle across the waterway. If possible adjust angle to allow for collection with vac truck. A small workboat or skiff will be needed to deploy the boom. Note: adjust location as needed to accommodate moored vessels.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0419	salmonids (anadromous)

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-22	Visited and Not Tested 07/31/2008	Lummi Point (E side of Lummi Island) N 48° 44.135' W 122° 41.266' map page 4-21 Chart #: 18424, 18430	Collection - Keep oil from moving up or down Hale Passage.	1000ft B2 - Contractor Boom	Deploy boom from beach on Lummi Point out into Hale Passage and anchor. Boom should be tended with a vessel at tide changes to reposition angles. Vac truck must remain on road or hardened surface.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0231	general fish & wildlife resources
NPS-23	Visited and Not Tested 07/31/2008	Fisherman's Cove N 48° 43.577' W 122° 39.842' map page 4-21 Chart # 18424	Collection - Collect oil to shore, remove with vac. Truck.	1000ft B2 - Contractor Boom	Deploy boom at an angle to collect oil towards shore for removal by vac truck. Pilings could be used to help anchor boom. Adjust angle and anchors based on real-time conditions. Vac truck must remain on road or hardened surface. Contact immediately or before entering: Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0344	tribal lands/resources

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-24	Visited and Not Tested 07/31/2008	Padden Creek N 48° 43.309' W 122° 30.505' map page 4-22 Chart #: 18424	Exclusion - Keep oil out of creek.	200ft B2 - Contractor Boom	Deploy boom in chevron configuration in front of gap in railroad trestle to lagoon. Anchor to railroad trestle. Flow through gap may be significant during tidal exchanges. Will need a small workboat to set the anchor at the apex of the chevron.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0431	baitfish, salmonids (anadromous), sensitive habitat
NPS-25	Visited and Not Tested 07/31/2008	Lummi Island Ferry (Lummi Island side) N 48° 43.221' W 122° 40.790' map page 4-21 Chart #: 18424, 18430	Collection - Collect oil as it moves up or down Hale Passage	1000ft B2 - Contractor Boom	Deploy boom from beach south of the ferry terminal out into Hale Passage and anchor. Boom could be tended with a vessel at tide changes to reposition angles. Adjust angle to maximize collection of oil.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0338	baitfish, general fish & wildlife resources, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-26	Visited and Not Tested 07/31/2008	Lagoon at the Port of Bellingham Marine Park N 48° 43.159' W 122° 31.099' map page 4-22 Chart #: 18424	Exclusion - Keep oil out of lagoon	200ft B2 - Contractor Boom	Deploy boom in chevron configuration in front of gap in railroad trestle to lagoon. Anchor to railroad trestle. Flow through gap may be significant during tidal exchanges. Will need a small workboat to set the anchor at the apex of the chevron.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0433	baitfish, salmonids (anadromous), sensitive habitat
NPS-27	Visited and Not Tested 07/31/2008	Post Point Lagoon N 48° 42.575' W 122° 31.165' map page 4-22 Chart #: 18424	Exclusion - Keep oil out of lagoon	200ft B2 - Contractor Boom	Deploy boom in chevron configuration in front of gap in railroad trestle to lagoon. Anchor to railroad trestle. Flow through gap may be significant during tidal exchanges. Will need a small workboat to set the anchor at the apex of the chevron. Takes about 1 hour once on site.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0436	baitfish, salmonids (anadromous), sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-28	Visited and Not Tested 07/31/2008	Portage Island Westside N 48° 42.332' W 122° 38.771' map page 4-21 Chart # 18424	Collection - Collect oil on shore, use vac truck to remove oil.	1000ft B2 - Contractor Boom	Deploy boom from shore, angle to use currents to collect oil at shore for vac truck. Adjust angle and anchors based on real-time conditions. Currents and winds can be strong in this area. All heavy equipment must remain on road or hardened surface. Contact immediately or before entering: Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0357	tribal lands/resources
NPS-29	Visited and Not Tested 07/31/2008	Sunrise Cove (E side of Lummi Island) N 48° 41.895' W 122° 39.799' map page 4-21 Chart #: 18424	Exclusion - Keep oil out of Sunrise Cove.	1200ft B2 - Contractor Boom	Secure boom to shore at an angle across bay.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0329	baitfish, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-30	Visited and Not Tested 07/29/2008	Chuckanut Creek N 48° 41.773' W 122° 30.333' map page 4-22 Chart #: 18424	Exclusion - Keep oil out of creek & North Chuckanut Bay.	400ft B2 - Contractor Boom	Deploy boom in chevron configuration in front of gap in railroad trestle to isolate bay and creek. Anchor to railroad trestle. Flow through gap may be significant during tidal exchanges, adjust angle as needed.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0449	baitfish, salmonids (anadromous), sensitive habitat, shellfish
NPS-31	Visited and Not Tested 07/31/2008	Point Francis (SW corner of Portage Island) N 48° 41.580' W 122° 37.376' map page 4-22 Chart #: 18424	Collection - Collect oil as it is moving up or down Hale Passage	1000ft B2 - Contractor Boom	Deploy boom at an angle out from the southwest corner of Portage Island to collect the oil. Adjust angle based on real-time conditions. Contact immediately or before entering: Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0359	general fish & wildlife resources

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-32	Visited and Not Tested 07/31/2008	Inati Bay (E side of Lummi Island) N 48° 40.365' W 122° 37.327' map page 4-22 Chart #: 18424	Exclusion - Keep oil out of Inati Bay.	800ft B2 - Contractor Boom	Secure boom to shore at an angle across bay entrance. Use stakes on beach and in-line anchors along boom to hold in place.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0314	sensitive habitat - small amount of eelgrass, low priority
NPS-33	Visited and Not Tested 07/29/2008	Larrabee State Park, Wildcat Cove N 48° 39.154' W 122° 29.653' map page 4-26 Chart #: 18424	Exclusion - Keep oil out of Wildcat Cove.	800ft B2 - Contractor Boom	Deploy boom across the entrance of the cove. Place anchors along boom as well as end points. Note: there is a boat ramp in the North cove.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=WHA0476	shellfish, public lands/facilities, sensitive habitat - Park

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-34	Visited and Not Tested 07/30/2008	Harrison and Colony Creeks N 48° 36.022' W 122° 25.529' map page 4-26 Chart #: 18424	Exclusion - Keep oil out of Creek.	300ft B2 - Contractor Boom	Deploy boom across the entrance to the creek as a chevron in front of the railroad trestle. Necessary only at high tide. Can be deployed from land.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0215	salmonids (anadromous), sensitive habitat, waterfowl
NPS-35	Visited and Not Tested 07/29/2008	Eagle Harbor (NE Side of Cypress Island) N 48° 35.278' W 122° 41.636' map page 4-23 Chart #: 18424, 18430	Exclusion - Keep oil out of the harbor.	1300ft B2 - Contractor Boom	Deploy boom from the ramp on the west shoreline. No attachment point is available at the east bluff; anchor the boom in as near as possible to the bluff. Use mooring buoys to help support boom. Non-sheltered cove, expect currents to push boom, place extra anchors as needed.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0185	marine birds, sensitive habitat - Park

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-36	Visited and Not Tested 07/29/2008	South Side of Williams Point N 48° 35.164' W 122° 33.579' map page 4-23	Exclusion - Keep oil out of cove.	1000ft B2 - Contractor Boom	Deploy boom in a chevron, adjust angle and anchors based on real-time conditions.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0274	baitfish
NPS-37	Visited and Not Tested 07/28/2008	Camp Kirby N 48° 34.375' W 122° 33.457' map page 4-23 Chart #: 18424	Collection - Prevent oil from moving up beach from the south.	1000ft B2 - Contractor Boom	Deploy boom from end of spit at Camp Kirby to enhance natural collection area. Adjust angle and attachment point based on real time conditions. Vac truck can access beach through Camp Kirby. Truck should bring extra hose for low tide and booster pump. At low tides boom could be deployed from shore.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0278	general fish & wildlife resources

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-38	Visited and Not Tested 07/29/2008	Cypress Head North Cove N 48° 34.217' W 122° 40.226' map page 4-23 Chart # 18424	Exclusion - Keep oil out of cove.	500ft B2 - Contractor Boom	Deploy boom across cove opening, adjust angle and anchors based on real-time conditions. Contact immediately or before entering: General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday)	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0175	public lands/facilities
NPS-39	Visited and Not Tested 07/30/2008	Alice Bay (N Entrance) N 48° 34.042' W 122° 29.480' map page 4-26 Chart #: 18424	Exclusion - Keep oil out of Alice Bay.	900ft B2 - Contractor Boom	Deploy boom across the north entrance from the south shoreline directly across from the island in front of Siwash slough. The island between the north and south entrances is very low and may not block oil at extreme high tides. Area is shallow and becomes a mudflat at low tide. Winds can be extreme around Scott's Point.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0257	sensitive habitat, waterfowl

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-40	Visited and Not Tested 07/30/2008	Edison Slough N 48° 33.999' W 122° 27.265' map page 4-26 Chart #: 18424	Exclusion - Keep oil out of Edison Slough.	600ft B2 - Contractor Boom	Deploy boom across entrance to slough in a chevron. Can only be deployed at high tide(+8), boat access only. Area becomes a mudflat at low tide.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0231	waterfowl, salmonids (anadromous), raptors, sensitive habitat
NPS-41	Visited and Not Tested 07/29/2008	South Cypress Head N 48° 33.909' W 122° 40.180' map page 4-23 Chart # 18424	Exclusion - Keep oil out of cove.	600ft B2 - Contractor Boom	Deploy boom across cove opening. Adjust angle and anchors based on real time conditions. Contact immediately or before entering: General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday)	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0172	public lands/facilities

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-42	Visited and Not Tested 07/30/2008	Alice Bay (S Entrance) N 48° 33.590' W 122° 29.190' map page 4-27 Chart #: 18424	Exclusion - Keep oil out of Alice Bay.	300ft B2 - Contractor Boom	Deploy boom across south entrance at the foot bridge. The island between the north and south entrances is very low and may not block oil at extreme high tides. May be able to deploy from land. Area is shallow and becomes a mudflat at low tide.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0248	waterfowl, sensitive habitat
NPS-43	Visited and Not Tested 07/29/2008	Secret Harbor (SE Side of Cypress Island) N 48° 33.337' W 122° 41.378' map page 4-24 Chart #: 18424, 18430, 18429	Exclusion - Keep oil out of the harbor.	1000ft B2 - Contractor Boom	Deploy boom across the narrowest part of the entrance to the harbor, from the rocky point on the south side of the harbor, directly north to the north shore. Attach boom to the shore or trees, and anchor to maintain position. Takes about 45 minutes to deploy once on site.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0164	marine birds - Marbled Murrelets, shellfish - Dungeness crab, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-44	Visited and Not Tested 07/30/2008	Samish River N 48° 33.303' W 122° 27.328' map page 4-27 Chart #: 18424	Exclusion, collection - Keep oil from moving up or down stream.	300ft B2 - Contractor Boom	Note: spills may occur upstream or downstream from site. Adjust angle, length of boom, and attachment points based on real-time conditions. If oil present, may be able to collect with vac truck.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0241	sensitive habitat, waterfowl, salmonids (anadromous)
NPS-45	Visited and Not Tested 07/29/2008	Gumes Island E side, Boat Harbor N 48° 32.846' W 122° 34.697' map page 4-24 Chart # 18424	Exclusion - Keep oil out of harbor.	500ft B2 - Contractor Boom	Deploy boom across opening to harbor. Adjust angle and number of anchors based on real-time conditions.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0073	public lands/facilities, resident fish

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-46	Visited and Not Tested 07/29/2008	Long Bay (SE corner of Guemes Island) N 48° 32.089' W 122° 34.511' map page 4-24 Chart #: 18427	Exclusion - Keep oil out of the bay.	1000ft B2 - Contractor Boom	Deploy boom across the bay from the rocky point on the south side of the bay, to the beach to the northwest. Mooring buoys can be used to help support anchor.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0068	sensitive habitat - has been productive for many years
NPS-47	Visited and Not Tested 07/29/2008	Second Pocket Beach on N Side of Fidalgo Island N 48° 31.267' W 122° 36.974' map page 4-24 Chart #: 18427	Exclusion - Keep oil off of the pocket beach.	800ft B2 - Contractor Boom	Deploy boom in a chevron from the north end of "M" Avenue to "O" Avenue. Takes about 45 minutes once on site.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0410	baitfish, habitat restoration/mitigation site

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-48	Visited and Not Tested 07/28/2008	Joe Leary Slough N 48° 31.175' W 122° 29.060' map page 4-27 Chart #: 18427	Collection, exclusion - Keep oil out of marsh, Collect if feasible.	1600ft B2 - Contractor Boom	Deploy boom in a chevron configuration with point of apex facing west. Area is shallow and becomes a mudflat at low tide. You may be able to use pilings as attachment points. To collect by land you would need to bring vac truck thru Merrit Apples. At high tides side channel may also need to be blocked.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0306	waterfowl, shorebirds, salmonids (anadromous), special protection area, sensitive habitat - Padilla Bay National Estuarine Research Reserve
NPS-49	Visited and Not Tested 07/29/2008	Pocket Beach on N Side of Fidalgo Island N 48° 31.124' W 122° 37.496' map page 4-24 Chart #: 18427	Exclusion - Keep oil off of the pocket beach and restoration site.	600ft B2 - Contractor Boom	Deploy boom in a chevron along shore from the north end of "H" Avenue to "I" Avenue at the ferry terminal (Guemes Island ferry).	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0412	baitfish, habitat restoration/mitigation site

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-50	Visited and Not Tested 07/29/2008	Cap Sante Park N 48° 30.692' W 122° 36.197' map page 4-24 Chart #: 18427	Exclusion, collection - Keep oil from moving north into Guemes Channel, and prevent oil from entering marina.	1600ft B2 - Contractor Boom	Deploy boom as an open chevron to allow for vessel traffic from marina. Adjust anchor points and angle based on real time conditions. If possible, legs of chevron to be adjusted to collect oil on beach.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0402	general fish & wildlife resources
NPS-51	Visited and Not Tested 07/29/2008	Ship Harbor N 48° 30.335' W 122° 40.396' map page 4-24 Chart #: 18427, 18430, 18429	Exclusion - Keep oil out of Ship Harbor.	2600ft B2 - Contractor Boom	Deploy boom from pilings at the ferry terminal to where road comes down to shore southeast of the terminal. Run boom along outside piling line. Keep boom outside mudflats so it does not dry out at low tide. Anchor offshore, not to pilings.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0420	salmonids (anadromous), herons & other wading birds, sensitive habitat

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-52	Visited and Not Tested 07/28/2008	N of Bayview SP, Sullivan Minor saltmarsh N 48° 30.168' W 122° 29.051' map page 4-27 Chart #: 18427	Exclusion - Keep oil out of salt marsh. (Extremely time consuming strategy without HELO support.)	2800ft B2 - Contractor Boom	Access without HELO support very limited. Deploy boom along the length of the Sullivan Minor salt marsh, can use piling for attachment and support. Area is shallow and becomes a mudflat at low tide. Contact immediately or before entering: Contact Info., Padilla Bay National Estuarine Research Reserve, (W) 360 428-1558, Padilla Bay National Estuarine Research Reserve	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0312	waterfowl, shorebirds, sensitive habitat, special protection area - Padilla Bay National Estuarine Research Reserve

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-53	Visited and Not Tested 07/28/2008	NE Corner March Point N 48° 30.095' W 122° 33.553' map page 4-24 Chart #: 18427	Collection, deflection - Prevent oil from moving around March Point to the east and south. If oil is present can collect with vac truck from road.	1500ft B2 - Contractor Boom	Deploy boom at an angle from the tip of March Point to collect oil moving along the beach from the west. Extend boom to 1500' if it will improve collection efficiency and the currents allow it. Can use concrete blocks and metal post near road for anchor. Contact immediately or before entering: Contact Info., Tesoro Refinery, (W) 360 293 9119, Tesoro Refinery	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0363	general fish & wildlife resources
NPS-54	Visited and Not Tested 07/29/2008	NW Fidalgo Island, Sunset Beach N 48° 30.081' W 122° 41.546' map page 4-24 Chart #: 18427, 18429	Exclusion - Keep oil off of Sunset Beach.	1100ft B2 - Contractor Boom	Deploy boom from the rocks at each end of the gravel beach in Washington Park (at the boat ramp). Contact immediately or before entering: Washington Park, City of Anacortes, (W) 360 293-1927	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0427	baitfish

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-55	Visited and Not Tested 07/28/2008	NE Shoreline of March Point N 48° 29.674' W 122° 33.251' map page 4-24 Chart #: 18427	Exclusion - Keep oil off near shore area and beach.	2000ft B2 - Contractor Boom	Starting about 1000 ft south of the small private boat ramp on the NE corner of March Point, deploy the boom along the shoreline 100-300 feet off the beach in a southerly direction, and bring the south end back in and anchor on the beach. Add boom as it becomes available and time allows. Contact immediately or before entering: Contact Info., Tesoro Refinery, (W) 360 293 9119, Tesoro Refinery	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0362	baitfish - surf smelt
NPS-56	Visited and Not Tested 07/28/2008	March Pt, Tidal Lagoon N of Crandall Spit N 48° 29.665' W 122° 34.693' map page 4-24 Chart #: 18427	Exclusion - Keep oil out of tidal lagoon.	200ft B2 - Contractor Boom	Deploy boom across the entrance to the lagoon on the north shore of Crandall Spit. Can be deployed from land. Contact immediately or before entering: Shell Refinery, Shell Refinery, (W) 360-293-1745, (H) 360-293-1707	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0370	baitfish, sensitive habitat, shellfish

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-57	Visited and Not Tested 07/28/2008	March PT., Crandall Spit N 48° 29.312' W 122° 34.802' map page 4-24 Chart #: 18427	Exclusion - Keep oil out of cove between Crandall Spit and "Shell Campground."	1400ft B2 - Contractor Boom	Requires a +a 5 rising tide. Anchor with stakes at SE end of the spit, angle boom across to "Shell Campground", anchor at "Shell Campground" with stakes. Place additional anchors along boom as real-time conditions require. Contact immediately or before entering: Shell Refinery, Shell Refinery, (W) 360-293-1745, (H) 360-293-1707	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0371	baitfish
NPS-58	Visited and Not Tested 08/01/2008	Fidalgo Bay, Weaverling Spit N 48° 29.045' W 122° 35.379' map page 4-24 Chart #: 18427	Exclusion - Keep oil away from Weaverling Spit.	4000ft B2 - Contractor Boom	Deploy boom in a chevron configuration with a 1000' leg from the railroad causeway to the tip of Weaverling Spit, and a 3000' leg from the tip of the spit to the beach near Highway 20. Contact immediately or before entering: Woodward Christine, Samish Indian Nation, (H) 360-661-6336, Samish Indian Nation	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0388	baitfish, waterfowl, shellfish, marine birds, sensitive habitat, tribal lands/resources

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-59	Visited and Not Tested 07/28/2008	Causeway Across Fidalgo Bay N 48° 28.787' W 122° 34.608' map page 4-24 Chart #: 18427	Exclusion, containment - Spill north of the trestle - Prevent oil from entering south Fidalgo Bay. Spill south of trestle - Keep oil in cove.	2300ft B2 - Contractor Boom	Deploy boom in a chevron configuration across the causeway opening . Adjust angle based on spill origin and currents. Recommend double anchors also use the railroad trestle, and pilings in mid-channel. The tidal current is extremely strong in this area. Anchor boom on both sides to prevent boom damage. Avoid anchoring boom near the submerged wreck along the eastern shore. This area is extremely shallow and becomes mud flat at low tide. Contact immediately or before entering: Shell Refinery, Shell Refinery, (W) 360-293-1745, (H) 360-293-1707 Woodward Christine, Samish Indian Nation, (H) 360-661-6336, Samish Indian Nation	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0374	waterfowl, baitfish, shorebirds, marine birds, sensitive habitat, shellfish

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-60	Visited and Not Tested 07/28/2008	Indian Slough (S end of Padilla Bay) N 48° 28.027' W 122° 28.619' map page 4-27 Chart #: 18427	Exclusion - Keep oil out of slough and side channel.	1600ft B2 - Contractor Boom	Deploy boom in a chevron configuration with apex pointing north. Deploy 400' for the west leg from the west side of the slough entrance directly north to the east end of Dikey Island and to the apex anchor point in the main channel.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0331	waterfowl, shorebirds, salmonids (anadromous), special protection area, sensitive habitat - Padilla Bay National Estuarine Research Reserve
NPS-61	Visited and Not Tested 07/29/2008	Salt Marsh SE Side March Point N 48° 28.013' W 122° 32.203' map page 4-24 Chart # 18427	Exclusion - Keep oil out of marsh.	25ft Sorbent Boom	Use 4X4 sheet of plywood and sorbents to block culvert. Emergency HPA required. Can deploy from road, no need for boat. Contact immediately or before entering: WDFW Emergency Hydraulic Project Approval, (M) 360-534-8233, 24-hour pager number. Responders must receive Emergency HPA from the WDFW prior to using culvert blocks and underflow dams.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0353	sensitive habitat, herons & other wading birds, shorebirds, salmonids (anadromous)

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-62	Visited and Not Tested 07/28/2008	Telegraph Slough, W end of Dike Island N 48° 27.792' W 122° 29.471' map page 4-27 Chart #: 18427	Exclusion - Keep oil out of area behind Dike Island	500ft B2 - Contractor Boom	Deploy boom across western opening between Dike Island and the mainland. Area is shallow and becomes a mudflat at low tide.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0334	salmonids (anadromous), shorebirds, sensitive habitat
NPS-63	Visited and Not Tested 07/28/2009	Rail Road Trestle, Whitemarsh Junction N 48° 27.730' W 122° 31.347' map page 4-27 Chart #: 18427	Exclusion - Keep oil out of the marsh.	200ft B2 - Contractor Boom	NOTE: Heavy tidal influence - need +7 tide to set anchor at apex. Deploy boom in chevron configuration in front of gap in railroad trestle to lagoon. Anchor to railroad trestle. Flow through gap may be significant during tidal exchanges. Will need a small workboat to set the anchor at the apex of the chevron. (Terasen has small boom and an ATV which could be used.)	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0350	waterfowl - Black Brant, Great Blue Heron rookery nearby, sensitive habitat - Eelgrass and saltmarsh

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-64	Visited and Not Tested 07/28/2008	Telegraph Slough (S end of Padilla Bay) N 48° 27.685' W 122° 29.670' map page 4-27 Chart #: 18427	Exclusion - Keep oil out of slough.	2600ft B2 - Contractor Boom	Deploy two 1300' legs of boom to form a chevron with the apex facing northwest. Area is shallow and becomes a mudflat at low tide. You will need a shallow draft boat and chest waders, recommend a tide between +4 and +6. Extreme tidal influence on both current and depth.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0335	waterfowl, shorebirds, special protection area, sensitive habitat - Padilla Bay National Estuarine Research Reserve
NPS-65	Visited and Not Tested 07/28/2008	Swinomish Channel (under Highway 20 bridge) N 48° 27.365' W 122° 30.824' map page 4-27 Chart #: 18427	Collection, deflection - Keep oil from moving into the Swinomish Channel.	2000ft B2 - Contractor Boom	Deploy boom on E side of the channel N of Highway 20 bridge to deflect the oil moving into the channel to collection sites along the shoreline. Area is vac truck accessible. Adjust length and angle based on real-time conditions. Extreme tidal influence on both current and depth.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0590	salmonids (anadromous), shorebirds

4.5 Proposed Booming and Collection Strategies - Matrices

Table 4-12: Proposed Booming Strategies and Resources Targeted (Cont)

Strategy	Current Status	Location (NAD83 HARN)	Response Objective	Feet of Boom	Strategy Implementation	Shoreline Oblique Photo	Resources Targeted
IF FIELD CONDITIONS REQUIRE MODIFICATION DO IT, THEN NOTIFY COMMAND							
NPS-66	Visited and Not Tested 07/28/2008	Swinomish Channel (under Highway 20 bridge) N 48° 27.335' W 122° 30.919' map page 4-27 Chart #: 18427	Collection, deflection - Keep oil from moving into the Swinomish Channel.	2000ft B2 - Contractor Boom	Deploy boom on west side of the channel under the Highway 20 bridge to deflect the oil moving into the channel to collection site along the shoreline. Vac truck accessible. Extreme tidal influence on both current and depth.	http://apps.ecy.wa.gov/shorephotos/scripts/bigphoto.asp?id=SKA0590	salmonids (anadromous), shorebirds

APPENDIX A - BOAT LAUNCH LOCATIONS SUMMARY

Appendix A: Boat Launch Locations Summary

Reference Number	Site Name	Location	Facility Description
Motorboat Launch Inventory			
BL-2	Blaine Boat Ramp	Sector Map NPS-2 N 48° 59.683'/ W 122° 45.183' Bellingham Bay	Car Parking, Paved and striped - 3 Launches, Loading float - 1 Launches, Ramp - concrete, plank - 2 Restrooms, Flush - 1 Trailer Parking, Paved and striped - 61 Waste Disposal, Pumpout - 1
BL-3	Point Roberts Marina and Resort	Sector Map NPS-1 N 48° 58.583'/ W 123° 3.767' Georgia Strait	Car Parking, Paved and striped - 50 Launches, Hoist - fixed - 1 Launches, Hoist - portable - 1 Trailer Parking, Paved and striped - 10 Waste Disposal, Pumpout - 1
BL-4	Lighthouse Marine Park (Point Roberts)	Sector Map NPS-1 N 48° 58.417'/ W 123° 4.950' Georgia Strait	Car Parking, Paved and striped - 40 Fencing, Perimeter fence - 1 Launches, Loading float - 1 Launches, Ramp - concrete, solid - 1 Trailer Parking, Paved and striped - 65 Waste Disposal, Trash receptacle - 1
BL-16	Birch Bay State Park	Sector Map NPS-3 N 48° 54.150'/ W 122° 45.433' Birch Bay	Car Parking, Paved and striped - 15 Launches, Ramp - gravel - 1 Restrooms, Vault - 1 Trailer Parking, Gravel - 20 Waste Disposal, Trash receptacle - 1
BL-24	Terrell Lake (WDFW)	Sector Map NPS-3 N 48° 51.500'/ W 122° 41.383' Lake Terrell	Car Parking, Gravel - 5 Launches, Loading float - 1 Launches, Ramp - concrete, plank - 1 Trailer Parking, Gravel - 10

Appendix A: Boat Launch Locations Summary

Reference Number	Site Name	Location	Facility Description
Motorboat Launch Inventory			
BL-47	Bloedel Donovan Park	Sector Map NPS-6 N 48° 45.617' W 122° 25.050' Lake Whatcom	Fencing, Perimeter fence - 1 Launches, Loading float - 2 Launches, Ramp - concrete, plank - 4 Trailer Parking, Paved and striped - 25 Waste Disposal, Trash receptacle - 2
BL-48	Squalicum Harbor	Sector Map NPS-6 N 48° 45.400' W 122° 29.717' Bellingham Bay	Car Parking, Paved and striped - 10 Launches, Loading float - 2 Launches, Ramp - concrete, plank - 4 Restrooms, Restrooms w/ showers - 1 Trailer Parking, Paved and striped - 92 Waste Disposal, Pumpout - 1
BL-57	Fisherman's Cove	Sector Map NPS-5 N 48° 43.917' W 122° 40.283' Lummi Bay	Car Parking, Gravel - 150 Launches, Hoist - fixed - 2 Launches, Loading float - 1 Trailer Parking, Gravel - 75
BL-61	6th Street Boat Launch	Sector Map NPS-6 N 48° 43.283' W 122° 30.583' Bellingham Bay	Car Parking, Gravel - 5 Launches, Loading float - 1 Launches, Ramp - concrete, plank - 2 Trailer Parking, Gravel - 10 Trailer Parking, Paved and striped - 25
BL-79	Larrabee State Park	Sector Map NPS-9 N 48° 39.267' W 122° 29.633' Bellingham Bay	Car Parking, Gravel - 15 Launches, Ramp - concrete, solid - 1 Restrooms, Vault - 1 Trailer Parking, Gravel - 25 Waste Disposal, Trash receptacle - 2

Appendix A: Boat Launch Locations Summary

Reference Number	Site Name	Location	Facility Description
Motorboat Launch Inventory			
BL-120	Cap Sante Marina - Moorage	Sector Map NPS-8 N 48° 30.767' W 122° 36.550' Fidalgo Bay	Car Parking, Paved and striped - 100 Launches, Hoist - fixed - 1 Launches, Loading float - 1 Trailer Parking, Gravel - 20 Trailer Parking, Paved and striped - 100 Waste Disposal, Pumpout - 1
BL-128	Washington Park	Sector Map NPS-8 N 48° 30.017' W 122° 41.567' Rosario Strait	Car Parking, Paved and striped - 20 Launches, Loading float - 1 Launches, Ramp - concrete, solid - 2 Restrooms, Portable sani-cans - 1 Trailer Parking, Gravel - 100 Waste Disposal, Dump station - 1
BL-130	March Point	Sector Map NPS-8 N 48° 30.000' W 122° 33.433' Padilla Bay	Launches, Ramp - gravel - 1 Trailer Parking, Gravel - 10
BL-132	Skyline Marina	Sector Map NPS-8 N 48° 29.550' W 122° 40.983' Burrows Bay	Launches, Hoist - fixed - 2 Launches, Hoist - portable - 1 Trailer Parking, Gravel - 100 Trailer Parking, Paved and striped - 100 Waste Disposal, Pumpout -
BL-134	Fidalgo Bay Resort	Sector Map NPS-8 N 48° 29.033' W 122° 35.400' Fidalgo Bay	Launches, Ramp - concrete, solid - 1
BL-136	Padilla Bay	Sector Map NPS-10 N 48° 29.117' W 122° 28.667' Padilla Bay	Launches, Ramp - concrete, solid - 1 Trailer Parking, Paved no striping - 5

Appendix A: Boat Launch Locations Summary

Reference Number	Site Name	Location	Facility Description
Motorboat Launch Inventory			
BL-141	Deception Pass State Park (Heart Lake)	Sector Map NPS-8 N 48° 28.383' W 122° 37.733' Heart Lake (Skagit Co.)	Car Parking, Gravel - 10 Launches, Ramp - concrete, plank - 2 Restrooms, Vault - 2 Trailer Parking, Gravel - 40 Waste Disposal, Pumpout - Waste Disposal, Trash receptacle - 1
BL-147	Swinomish Channel Boat Launch	Sector Map NPS-10 N 48° 27.300' W 122° 30.717' Swinomish Channel	Car Parking, Paved and striped - 25 Launches, Loading float - 1 Launches, Ramp - concrete, solid - 2 Restrooms, Flush - 2 Trailer Parking, Paved and striped - 75

APPENDIX B - DETAILED STRATEGY LOCATIONS AND DESCRIPTIONS

Site Lat/Long:	N 48° 59.540' / W 122° 46.097', Sector Map NPS-2
Strategy Objective:	Collection, Exclusion - Keep oil out of Drayton Harbor, collect oil if possible.
Implementation:	Deploy boom at an angle out from the Blaine small boat harbor breakwater to collect oil moving along the shore; adjust angle based on direction of oil movement. Area is vac truck accessible. Additional legs of boom maybe needed depending on real-time conditions.
Site Safety Note:	Boat traffic
Field Notes:	Drayton Harbor would be active during a large spill, so boom must be attended 24/7 to insure that no navigational problems occur. Good cell phone coverage, launches, bathrooms, water etc. available.
Resources Targeted:	general fish & wildlife resources, shellfish
Fixed Anchors:	240: N 48° 59.514' / W 122° 45.977', NE shoreline anchor point, adjust as needed.
Watercourse Description:	Bay, with lots of development and boat activity

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
1 each	Boat(s)
1 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 09/16/2008

NPS

Boat Launch

NPS

N shore anchor point



SW
N 48° 59' 37.30" W 122° 45' 12.70" UTM 84 07/30/2008 10:08:04 AM

Image-1275: Boat launch

W
N 48° 59' 31.24" W 122° 45' 59.00" UTM 84 07/30/2008 10:25:51 AM

Image-1274: N shore anchor point

Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 58.345' / W 122° 43.717', Sector Map NPS-2
Strategy Objective:	Exclusion, Collection - Keep oil from moving up creek, if oil is present collect.
Implementation:	At high tide will need small work boat to deploy boom across creek at an angle. Other times may be able to deploy with line and bridge. Site is vac truck accessible, may need booster pump and extra hose. Deploy boom at an angle, adjust based on real-time conditions.
Site Safety Note:	Take traffic safety precautions.
Field Notes:	Pull out on the N side of bridge, best creek access on NW side of bridge.
Resources Targeted:	salmonids (anadromous), shellfish
Fixed Anchors:	173: N 48° 58.356' / W 122° 43.722', Water Depth 0ft, NE anchor point, adjust as needed
Watercourse Description:	Creek

**Suggested Equipment**

Quantity	Description
500 ft	B2 - Contractor Boom
4 each	Stake(s)
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/30/2008

NPS

View from N bank upstream



07/30/2008 9:54:06 AM

Image-1133: View from N bank upstream.

NPS

Dakota Creek from N bank



SE

N 48° 58' 21.01" W 122° 43' 44.90" WGS 84

07/30/2008 9:49:26 AM

Image-1132: View from north bank.

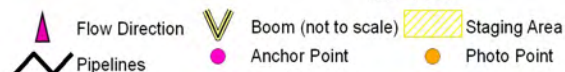
Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 57.711' / W 122° 43.946', Sector Map NPS-2
Strategy Objective:	Collection, Exclusion - Keep oil from moving up creek.
Implementation:	Deploy boom at an angle across creek under the bridge on Drayton Harbor Road to collect on the southeast side of bridge. Best access on nw side of bridge. Should be able to use lines and bridge to deploy without a boat. If oil present, vac truck should be able to collect, but will need hose and booster pump. Vac truck must remain on road or hardened surface.
Site Safety Note:	Take traffic safety precautions.
Field Notes:	Boat access from Blaine or Semiahmoo Marina. Vehicle access from I-5 exit 274, go east and south on Blaine Road to Drayton Harbor Road, vac truck access from Drayton Harbor Road.
Resources Targeted:	salmonids (anadromous), sensitive habitat - has been very productive historically, shellfish
Fixed Anchors:	170: N 48° 57.722' / W 122° 44.051', Water Depth 0ft, near west end of bridge, can drive stakes or use boulders
Watercourse Description:	Creek

**Suggested Equipment**

Quantity	Description
200 ft	1/2 poly line
300 ft	B2 - Contractor Boom
4 each	Stake(s)

Suggested Personnel

2	Laborer (s)
---	-------------

Status: Visited and Not Tested 07/30/2008

NPS

Downstream view Cal. Creek



E
N 48° 57' 43.94" W 122° 43' 59.4" WGS 84 07/30/2008 9:29:48 AM

Image-1126: California Creek looking downstream.

NPS

N bank anchor point use bridge piling



NE
N 48° 57' 43.36" W 122° 43' 57.8" WGS 84 07/30/2008 9:35:58 AM

Image-1127: North anchor point, can use pilings.

Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 55.888' / W 122° 47.225', Sector Map NPS-2
Strategy Objective:	Collection, Exclusion - Keep oil off shoreline on Birch Point, collect oil if possible.
Implementation:	Deploy 1000' of boom at an angle to collect oil, adjust angle based on spill origin point. Loop additional 600 feet of boom into marina entrance to protect shoreline and create collection site. Site is vac truck accessible. Vac truck must remain on road or hardened surface.
Site Safety Note:	Site has steep bank, with rip rap.
Field Notes:	Boat access from the Birch Bay Village Marina. Vehicle access from I-5 exit 270, go west to Birch Bay Drive and north to Birch Point Road. Vac truck access from marina parking lot.
Resources Targeted:	general fish & wildlife resources
Fixed Anchors:	171: N 48° 55.890' / W 122° 47.254', west side of channel near mouth, adjust as needed
Watercourse Description:	Cove, man-made, rip rap shoreline



Suggested Equipment

Quantity	Description
1600 ft	B2 - Contractor Boom
6 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)
1 each	Vac Truck(s)
2 each	Work Boat(s)

Suggested Personnel

2	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/30/2008

Birch Bay Village boat launch



SW
N 48° 56' 07.13" W 122° 47' 05.51" UGS 84 07/30/2008 9:00:30 AM

Image-1129: Birch Bay boat launch.

High Priority - contact immediate
or before entering:
24 Hour Number, Birch Bay
Community, (W) 360 371-7644

Cannot Drive to Site

Site Lat/Long:	N 48° 55.294' / W 122° 44.830', Sector Map NPS-2
Strategy Objective:	Exclusion, Collection - Keep oil out of creek, if oil present may be able to collect with vac truck.
Implementation:	Deploy boom as chevron at creek mouth. Can be deployed from land at low tides. Vac truck must remain on road or hardened surface.
Site Safety Note:	Take traffic safety precautions.
Field Notes:	By boat from BP dock. Vehicle access from Birch Bay Drive. Stormwater outfall has a gate.
Resources Targeted:	salmonids (anadromous)
Fixed Anchors:	172: N 48° 55.296' / W 122° 44.715', Water Depth 0ft, north bank near creek mouth, adjust as needed
Watercourse Description:	Creek

**Suggested Equipment**

Quantity	Description
300 ft	B2 - Contractor Boom
1 each	Danforth(s) or other appropriate anchor
2 each	Stake(s)
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
1	Laborer (s)

Status: Visited and Not Tested 07/30/2008

NPS

Mouth of Bayview Park, with creek



SW
N 48° 55' 16.08" W 122° 44' 41.81" WGS 84 07/30/2008 8:09:25 AM

Image-1130: Mouth of creek.

NPS

Pilings above high tide mark, anchor point



S
N 48° 55' 17.48" W 122° 44' 42.81" WGS 84 07/30/2008 8:16:56 AM

Image-1131: Pilings near anchor point.

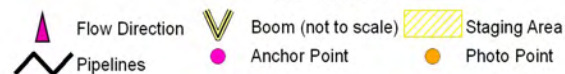
Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 54.080' / W 122° 46.549', Sector Map NPS-3
Strategy Objective:	Collection - Keep oil out of inner Birch Bay.
Implementation:	Deploy boom at an angle out from beach at state park boat ramp to collect oil moving around Pt. Whitehorn. Adjust angle based on real-time conditons. Need +5 tide to use for collection. Area boat ramp requires a +6 tide to be used. Takes about 2 hours once on site. Vac truck must remain on road or hardened surface.
Site Safety Note:	Traffic
Field Notes:	Tidal dependent need a +5 tide to use as collection point.
Resources Targeted:	baitfish, general fish & wildlife resources, waterfowl, sensitive habitat
Fixed Anchors:	174: N 48° 54.081' / W 122° 46.426', near boat launch, adjust as needed
Watercourse Description:	Bay, exposed area can have high winds

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
3 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)
1 each	Vac Truck(s)
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/30/2008

NPS

View of pullout and launch



SW
N 48° 54' 04.89" W 122° 46' 24.01" WGS 84 07/30/2008 7:53:11 AM

Image-1135: Pull out and parking.

NPS

View from boat launch to collection area



W
N 48° 54' 04.84" W 122° 46' 25.61" WGS 84 07/30/2008 7:48:04 AM

Image-1134: View from ramp at a -4 tide.

Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 51.296' / W 122° 43.882', Sector Map NPS-4
Strategy Objective:	Collection - Prevent oil from moving up beach.
Implementation:	Deploy boom from beach outward at an angle to collect oil moving along beach. Area is a natural collection point, primarily for oil from the south. Area subject to extreme adverse weather that may prevent deployment of boom. All heavy equipment must remain on road or hardened surface.
Site Safety Note:	If accessing by water, need a tidal elevation of at least +8.5 ft MLLW.
Field Notes:	Should be vac. Truck accessible under most conditions. Should only be deployed if trajectory and over flight information warrant it.
Resources Targeted:	sensitive habitat - has been historically very productive, baitfish, waterfowl, general fish & wildlife resources
Fixed Anchors:	179: N 48° 51.382' / W 122° 43.910', Water Depth 0ft, shore along beach, adjust as needed
Watercourse Description:	Puget Sound, open section with natural collection area

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
1 each	Boat(s)
3 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)
1 each	Vac Truck(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/31/2008

NPS

Beach anchor point



N 48° 51' 15.99" W 122° 43' 53.70" WGS 84 07/31/2008 11:30:00 AM

Image-1144: Collection site from water - note road in background.

No Image Available

Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 48.113' / W 122° 40.832', Sector Map NPS-4
Strategy Objective:	Exclusion - Keep oil out of slough
Implementation:	There are two options: block-off tide gates, if that is not possible deploy boom in a chevron in front of the tide gates. To deploy the chevron will require a skiff and 3 people. Piling in the area could be used to help hold the boom in place.
Site Safety Note:	Slips, trips, falls. Pilings.
Field Notes:	Paved road access.
Resources Targeted:	tribal lands/resources, sensitive habitat
Fixed Anchors:	193: N 48° 48.191' / W 122° 40.783', Water Depth 0ft, shore near tide gates, adjust as needed
Watercourse Description:	Slough

**Suggested Equipment**

Quantity	Description
400 ft	B2 - Contractor Boom
1 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/30/2008

NPS

N most tide gate



N
N 48° 48' 11.64" W 122° 40' 45.67" UTM 84 07/30/2008 1:07:03 PM

Image-1177: Northern most tide gate.

NPS

Southern most tide gates



SE
N 48° 48' 11.25" W 122° 40' 45.47" UTM 84 07/30/2008 1:06:32 PM

Image-1176: Southern most tide gates.

Site Contact Information

High Priority - contact immediate or before entering:
Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.

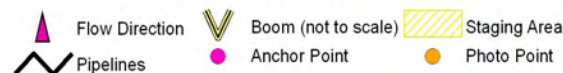
Closest Address:

98248

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 47.605' / W 122° 39.843', Sector Map NPS-4
Strategy Objective:	Exclusion, Collection - Keep oil out of river, collect oil if possible.
Implementation:	Deploy boom in a chevron, adjust angle and anchors based on real-time conditions. At tides below +2.5 should be able to deploy without a boat. But mud can be sticky. Site is vac. Truck accessible.
Site Safety Note:	Narrow dirt road, bank is steep and slippery.
Field Notes:	There are two access routes to the site. Hillaire RD and Kwina RD or Hillaire Rd just east of the Lummi River bridge. Get local tribal guide.
Resources Targeted:	tribal lands/resources, salmonids (anadromous), sensitive habitat
Fixed Anchors:	246: N 48° 47.615' / W 122° 39.815', Water Depth 0ft, E anchor point, may be able to use old pilings to help anchor boom, adjust as needed
Watercourse Description:	River with tidal influence

**Suggested Equipment**

Quantity	Description
400 ft	B3 - River Boom, or other appropriate type
1 each	Danforth(s) or other appropriate anchor
1	Jet Boat
6 each	Stake(s)
1 each	Vac Truck(s)

Suggested Personnel

1	Boat Operator (s)
1	Laborer (s)

Status: Visited and Not Tested 07/30/2008

NPS

Access Road Lummi River

NPS

E bank, use piling to help anchor



W
N 48° 48' 29.14" W 122° 38' 59.7" WGS 84 07/30/2008 1:24:15 PM

Image-1184: Access road, near Lummi River Bridge.



SW
N 48° 47' 36.88" W 122° 39' 48.8" WGS 84 07/30/2008 11:55:33 AM

Image-1183: Shot from road, pilings can be used to help anchor.

Site Contact Information

High Priority - contact immediate or before entering:
Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.

Closest Address:

98248

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 47.452' / W 122° 35.409', Sector Map NPS-6
Strategy Objective:	Notification - Keep oil from entering water intake.
Implementation:	Provide notice, Lummi Nation to put eyes on the water, if oil observed pump to be shut down.
Field Notes:	Pump only runs certain times of year, Aug.- Dec. and Feb. - May. Water in-take depth about 10 feet. The fish being fed with this water can only live a few hours with the pump off.
Resources Targeted:	water intakes
Watercourse Description:	River with tidal influence

Suggested Equipment

Quantity	Description
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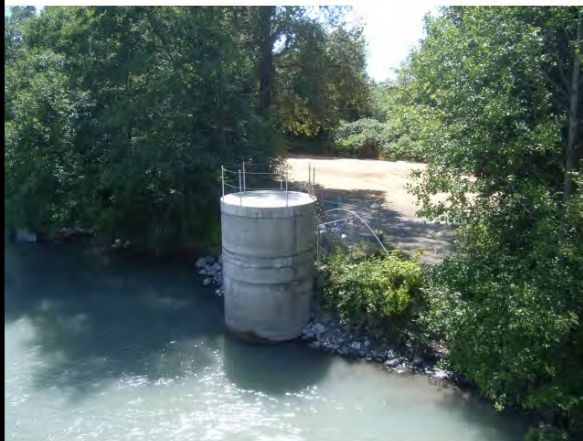
Suggested Personnel

Status: Visited and Not Tested 07/30/2008



NPS

View of water intake from bridge



SE

N 48° 47' 29.19" W 122° 35' 26.57" UTM 84 07/30/2008 2:17:07 PM

Image-1174: Overview of water intake.

No Image Available

Site Contact Information

High Priority - contact immediate or before entering:
Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.
Lummi Nation Sea Ponds, SeaPonds Hatchery Manager Bob Hall (360-384-2221) Natural Resources Department Executive Director Merle Jefferson (360-410-1706)

Closest Address:

98226

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 47.324' / W 122° 42.756', Sector Map NPS-4
Strategy Objective:	Collection - Collect oil
Implementation:	Deploy boom from north shore of Sandy Point Shores Marina and anchor to shore for collection. Adjust angle based on real-time conditions. Depending on conditions may collect oil by boat or vac truck.
Site Safety Note:	Recreational boat traffic
Field Notes:	Site is vac truck accessible.
Resources Targeted:	resident fish, tribal lands/resources
Fixed Anchors:	181: N 48° 47.377' / W 122° 42.651', beach, adjust as needed
Watercourse Description:	Puget Sound, open area

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
1 each	Boat(s)
3 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)
1 each	Vac Truck(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/31/2008

NPS

View from water into Sandy Point Cove



SE
N 48° 47' 20.71" W 122° 42' 55.96" UTM 84 07/31/2008 10:43:51 AM

Image-1146: Overview of point from water.

No Image Available

Site Contact Information






Responsible party or alternate contact:
Sandy Point Marina, (W) 360-384-4373, marina contact for access

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 47.314' / W 122° 40.670', Sector Map NPS-4
Strategy Objective:	Exclusion - Keep oil out of pond.
Implementation:	Gate and raceway at this site is in good condition. The leakage of water and/or oil during the flood tide could be controlled with sorbents placed inside and across raceway. Hang sorbent, booms, sweeps or snare lines between weighted droplines to hold ends to vertical walls.
Site Safety Note:	Sea Pond Dike Rd., is a very bumpy dirt road with large periodic dips.
Field Notes:	You can deploy from the Sea Pond Dike Rd., but you need a vehicle with high clearance.
Resources Targeted:	tribal lands/resources, shellfish
Watercourse Description:	Pond, man made pond with flood gates



 Flow Direction
  Boom (not to scale)
  Staging Area
  Anchor Point
  Photo Point

0 250 500 1,000 Feet

Suggested Equipment

Quantity	Description
50 ft	Snare Boom
50 ft	Sorbent Boom

Suggested Personnel

2	Laborer (s)
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Status: New - visited but not tested 07/29/2008

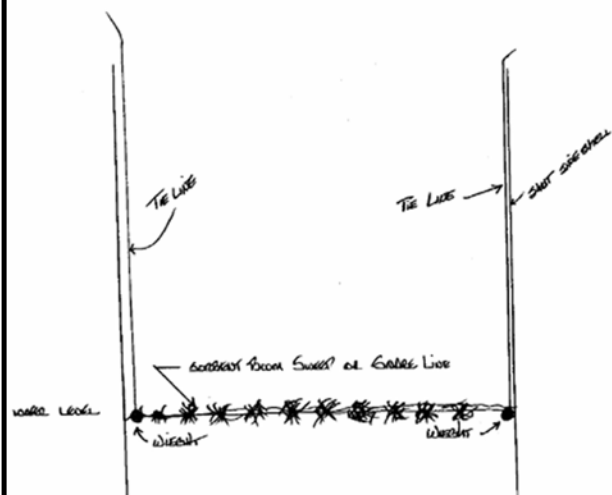


Image-1156: Davis drawing.

NPS

Flood gate

N
N 48° 47' 14.16" W 122° 39' 56.3" WGS 84 07/30/2008 12:17:07 PM

Image-1155: Tide Gate on Sea Pond Dike.

Site Contact Information

High Priority - contact immediate or before entering:
Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.

Closest Address:

98248

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 47.310' / W 122° 39.707', Sector Map NPS-4
Strategy Objective:	Exclusion - Keep oil out of slough.
Implementation:	Block the five tide gates with plywood or sorbent boom. Note: no need to deploy on outgoing tide cycle.
Site Safety Note:	Remote dirt road - will need high clearance vehicle.
Field Notes:	No need to block on out going tide.
Resources Targeted:	tribal lands/resources, sensitive habitat
Watercourse Description:	Slough, ,

**Suggested Equipment**

Quantity	Description
5 each	4 x 4 ft Plywood
50 ft	Sorbent Boom
10 each	Stake(s)

Suggested Personnel

2	Laborer (s)
---	-------------

Status: Visited and Not Tested 07/30/2008

NPS

Tide gates a Smuggler Slough



N
N 48° 47' 23.06" W 122° 39' 44.9" WGS 84 07/30/2008 11:33:17 AM

Image-1178: Flapper tide gates.

No Image Available

Site Contact Information

High Priority - contact immediate or before entering:
Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.

Closest Address:

98226

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 47.262' / W 122° 40.838', Sector Map NPS-4
Strategy Objective:	Exclusion - Keep oil out of pond.
Implementation:	Gates and raceways are in poor condition, as they deteriorate successful exclusion of oil from the Sea Pond Aquaculture Facility via this structure will be increasingly difficult, due to increasing flow rate. Deployment of a chevroned exclusion boom would help deflect oil away from the gates on flood tide. The substantial pressure against the boom would require solid shore anchor points, and robust anchor gear for the offshore apex.
Site Safety Note:	Sea Pond Dike Rd., is a very bumpy dirt road with large periodic dips.
Field Notes:	You can deploy from the Sea Pond Dike Rd., but you need a vehicle with high clearance.
Resources Targeted:	special protection area, tribal lands/resources
Fixed Anchors:	247: N 48° 47.196' / W 122° 40.865', apex of chevron, will need to place anchors further out, adjust based on real-time conditions
Watercourse Description:	Pond

**Suggested Equipment**

Quantity	Description
400 ft	B2 - Contractor Boom
2 each	Danforth(s) or other appropriate anchor
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/30/2008

NPS

Fish Pond Tide Gate Spill Way



NE
N 48° 47' 10.33" W 122° 40' 48.45" UTM 84 07/30/2008 12:29:55 PM

Image-1157: NW-2 overview.



Image-1160: Davis drawing.

Site Contact Information

High Priority - contact immediate or before entering:
Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.

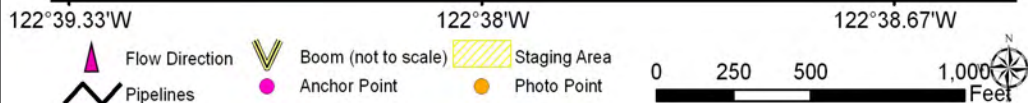
Closest Address:

98248

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 46.655' / W 122° 38.998', Sector Map NPS-4
Strategy Objective:	Exclusion - Keep oil out of pond.
Implementation:	Small gate with broken concrete rip-rap at the mouth. Deploy 200' chevron deflection boom to divert oil on flood tide away from gate. Avoid fouling boom on broken concrete. Anchor boom ends to shore anchors.
Site Safety Note:	Sea Pond Dike Rd., is a very bumpy dirt road with large periodic dips.
Field Notes:	You can deploy from the Sea Pond Dike Rd., but you need a vehicle with high clearance.
Resources Targeted:	tribal lands/resources, shellfish
Watercourse Description:	Pond

**Suggested Equipment**

Quantity	Description
200 ft	B2 - Contractor Boom
1 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/28/2008



Image-1197: Overview drawing.

No Image Available

Site Contact Information

High Priority - contact immediate or before entering:
Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.

Closest Address:

98226

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 46.590' / W 122° 39.123', Sector Map NPS-4
Strategy Objective:	Exclusion - Keep oil out of pond.
Implementation:	Gate at fish hatchery is in good working condition. Fabricate gate with underflow pipe to stop oil, yet let water flow each way. Or close raceway completely
Site Safety Note:	Sea Pond Dike Rd., is a very bumpy dirt road with large periodic dips.
Field Notes:	You can deploy from the Sea Pond Dike Rd., but you need a vehicle with high clearance.
Resources Targeted:	tribal lands/resources, shellfish
Watercourse Description:	Pond

**Suggested Equipment**

Quantity	Description
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Suggested Personnel

2	Laborer (s)
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Status: Visited and Not Tested 07/29/2008



Image-1194: Overview of tide gate.

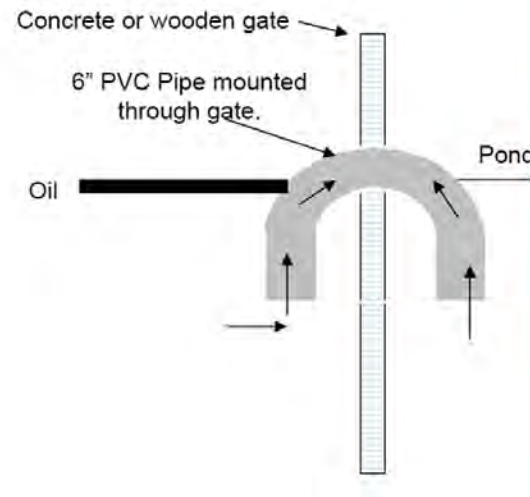


Image-1195: Pipe by-pass.

Site Contact Information

High Priority - contact immediate or before entering:
Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.

Closest Address:

98226

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 46.432' / W 122° 39.245', Sector Map NPS-4
Strategy Objective:	Exclusion - Keep oil out of pond.
Implementation:	Install Shore anchors either side of tidal gates. Anchor 500'-600'boom in chevron seaward to deflect oil away from gates. (May require substantial off shore anchors to hold chevron)
Site Safety Note:	Sea Pond Dike Rd., is a very bumpy dirt road with large periodic dips.
Field Notes:	You can deploy from the Sea Pond Dike Rd., but you need a vehicle with high clearance.
Resources Targeted:	tribal lands/resources, shellfish
Watercourse Description:	Pond



Flow Direction
 Boom (not to scale)
 Staging Area
 Anchor Point
 Photo Point

0 250 500 1,000 Feet

Suggested Equipment

Quantity	Description
600 ft	B2 - Contractor Boom
3 each	Danforth(s) or other appropriate anchor
2 each	Work Boat(s)

Suggested Personnel

2	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/29/2008

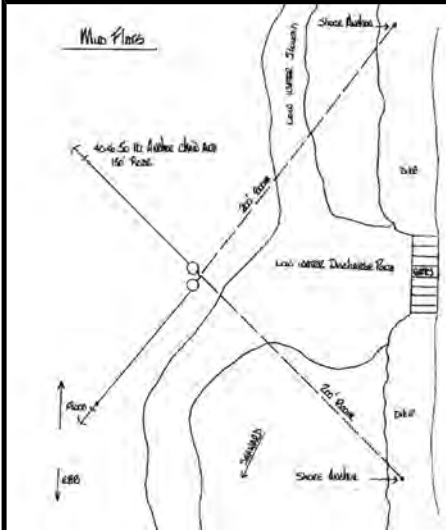


Image-1192: Drawing



Image-1193: SE-3 aerial showing boom.

Site Contact Information

High Priority - contact immediate or before entering:
Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.

Closest Address:

98226

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 46.409' / W 122° 36.038', Sector Map NPS-6
Strategy Objective:	Exclusion, Collection - Keep oil out of slough, and collect if possible.
Implementation:	Deploy boom at an angle across south entrance to slough. Adjust angle based on spill origin point to collect at shore. Vac truck access at Native American Shellfish, 3622 Lummi Shore Road. Vac truck must remain on road or hardened surface.
Site Safety Note:	Slough can have currents due to run-off and or tidal push.
Staging Area:	Kwina Slough (S entrance), NPS-18-staging
Field Notes:	Good access off Lummi Shore Rd.. Should be able to launch small boat from Native American Shellfish, 3622 Lummi Shore Rd..
Resources Targeted:	salmonids (anadromous), sensitive habitat
Fixed Anchors:	166: N 48° 46.427' / W 122° 36.120', shore near shellfish company, adjust as needed
Watercourse Description:	Slough

**Suggested Equipment**

Quantity	Description
300 ft	B2 - Contractor Boom
4 each	Stake(s)
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
1	Laborer (s)

Status: Visited and Not Tested 07/30/2008

NPS

S Shore Kwina Slough, anchor, ramp



SE

N 48° 46' 25.75" W 122° 36' 06.9" WGS 84 07/30/2008 1:43:34 PM

Image-1121: Anchor point near ramp.

No Image Available

Site Contact Information

High Priority - contact immediate or before entering:
Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 46.322' / W 122° 39.740', Sector Map NPS-4
Strategy Objective:	Exclusion - Keep oil out of pond.
Implementation:	Slots in raceway are in good condition. Close off completely with solid gate.
Site Safety Note:	Sea Pond Dike Rd., is a very bumpy dirt road with large periodic dips.
Field Notes:	You can deploy from the Sea Pond Dike Rd., but you need a vehicle with high clearance.
Resources Targeted:	tribal lands/resources, shellfish
Watercourse Description:	Pond

**Suggested Equipment**

Quantity	Description
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Suggested Personnel

1	Laborer (s)
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Status: Visited and Not Tested 07/29/2008



Image-1190: South gate number 4.

No Image Available

Site Contact Information

High Priority - contact immediate or before entering:
Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.

Closest Address:

98226

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 46.297' / W 122° 35.997', Sector Map NPS-6
Strategy Objective:	Collection, Exclusion - Keep oil from going up slough and river, collect oil if possible
Implementation:	Deploy boom at an angle to allow for collection along shore. Adjust angle and anchors based on real-time conditions. Area is vac truck accessible. Vac truck must remain on road or hardened surface.
Site Safety Note:	Can have strong tidal and run-off currents.
Field Notes:	There is a spot where a Jon Boat could be dragged down the bank.
Resources Targeted:	tribal lands/resources, salmonids (anadromous), sensitive habitat
Fixed Anchors:	194: N 48° 46.332' / W 122° 36.051', Water Depth 0ft, shore along slough, adjust as needed
Watercourse Description:	Slough, and river intersect, area has strong tidal influence

**Suggested Equipment**

Quantity	Description
500 ft	B2 - Contractor Boom
6 each	Stake(s)
1 each	Vac Truck(s)
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
1	Laborer (s)

Status: Visited and Not Tested 07/30/2008

NPS

Access road to Kwina Slough



SE
N 48° 46' 19.94" W 122° 36' 06.8" WGS 84 07/30/2008 1:49:02 PM

Image-1181: Access road to Kwina Slough off of Lummi Shore Rd.

NPS

Anchor point, ramp collection point



SE
N 48° 46' 19.90" W 122° 36' 03.0" WGS 84 07/30/2008 1:51:31 PM

Image-1182: Anchor point and boat launch area.

Site Contact Information

High Priority - contact immediate or before entering:
Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.

Closest Address:

98226

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 45.154' / W 122° 29.098', Sector Map NPS-6
Strategy Objective:	Exclusion - Keep oil from moving up into or out of the mouth of Whatcom Creek.
Implementation:	Deploy boom at an angle across the waterway. If possible adjust angle to allow for collection with vac truck. A small workboat or skiff will be needed to deploy the boom. Note: adjust location as needed to accommodate moored vessels.
Site Safety Note:	pilings, recreational boat traffic
Field Notes:	Good cell phone coverage, adjust location as needed to accommodate moored vessels
Resources Targeted:	salmonids (anadromous)
Fixed Anchors:	228: N 48° 45.107' / W 122° 29.208', NW anchor point, adjust as needed
Watercourse Description:	Creek, mouth with lots of industrial activity

**Suggested Equipment**

Quantity	Description
300 ft	B2 - Contractor Boom
1 each	Boat(s)

Suggested Personnel

1	Boat Operator (s)
1	Laborer (s)

Status: Visited and Not Tested 07/31/2008

NPS

N bank anchor point



NW

N 48° 45' 05.61" W 122° 29' 11.50" WGS 84 07/31/2008 2:55:34 PM

Image-1256: NW anchor point

NPS

Anchor point



S

N 48° 45' 04.80" W 122° 29' 08.84" WGS 84 07/31/2008 2:58:37 PM

Image-1257: SW anchor point

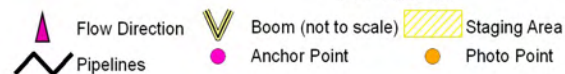
Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 44.135' / W 122° 41.266', Sector Map NPS-5
Strategy Objective:	Collection - Keep oil from moving up or down Hale Passage.
Implementation:	Deploy boom from beach on Lummi Point out into Hale Passage and anchor. Boom should be tended with a vessel at tide changes to reposition angles. Vac truck must remain on road or hardened surface.
Site Safety Note:	Cable crossing in area.
Field Notes:	Site is vac. Truck accessible.
Resources Targeted:	general fish & wildlife resources
Fixed Anchors:	180: N 48° 44.075' / W 122° 41.340', Water Depth 0ft, beach near point, adjust as needed
Watercourse Description:	Puget Sound, open passage with strong currents

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
3 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)
1 each	Vac Truck(s)
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/31/2008

NPS

beach anchor site



SW
N 48° 44' 03.67" W 122° 41' 07.81" WGS 84 07/31/2008 10:15:03 AM

Image-1145: Beach anchor point.

No Image Available

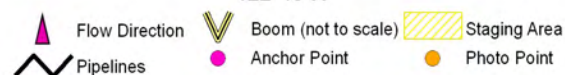
Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 43.577' / W 122° 39.842', Sector Map NPS-5
Strategy Objective:	Collection - Collect oil to shore, remove with vac. Truck.
Implementation:	Deploy boom at an angle to collect oil towards shore for removal by vac truck. Pilings could be used to help anchor boom. Adjust angle and anchors based on real-time conditions. Vac truck must remain on road or hardened surface.
Site Safety Note:	Vessel traffic, pilings
Field Notes:	Area is vac. Truck accessible.
Resources Targeted:	tribal lands/resources
Watercourse Description:	Cove

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
3 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)
1 each	Vac Truck(s)
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/31/2008

NPS

Beach anchor point, use pilings

E
N 48° 43' 30.77" W 122° 39' 53.07" UTM 84 07/31/2008 9:56:19 AM

Image-1188: Beach anchor point.

No Image Available

Site Contact Information

High Priority - contact immediate or before entering:
Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.

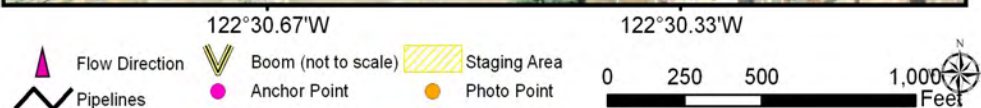
Closest Address:

98226

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 43.309' / W 122° 30.505', Sector Map NPS-6
Strategy Objective:	Exclusion - Keep oil out of creek.
Implementation:	Deploy boom in chevron configuration in front of gap in railroad trestle to lagoon. Anchor to railroad trestle. Flow through gap may be significant during tidal exchanges. Will need a small workboat to set the anchor at the apex of the chevron.
Site Safety Note:	Ferry vessel traffic
Field Notes:	By boat from ramp on south end of trestle; vehicle access from I-5 Fairhaven exit, go west on Fairhaven Parkway to 12th St., go north to Harris Ave., west to 6th St. and north to site.
Resources Targeted:	baitfish, salmonids (anadromous), sensitive habitat
Fixed Anchors:	314: N 48° 43.306' / W 122° 30.506', Water Depth 0ft, shore near end of trestle, maybe able to use trestle pilings - adjust as needed
Watercourse Description:	Creek, with small lagoon, has strong tidal influence

**Suggested Equipment**

Quantity	Description
200 ft	B2 - Contractor Boom
1 each	Danforth(s) or other appropriate anchor
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/31/2008

NPS

Tressel with channel



SE
N 48° 43' 21.00" W 122° 30' 33.00" WGS 84 07/31/2008 2:36:31 PM

Image-1151: Overview of channel and trestle.

No Image Available

Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 43.221' / W 122° 40.790', Sector Map NPS-5
Strategy Objective:	Collection - Collect oil as it moves up or down Hale Passage
Implementation:	Deploy boom from beach south of the ferry terminal out into Hale Passage and anchor. Boom could be tended with a vessel at tide changes to reposition angles. Adjust angle to maximize collection of oil.
Site Safety Note:	Ferry traffic
Field Notes:	Good verizon phone coverage.
Resources Targeted:	baitfish, general fish & wildlife resources, sensitive habitat
Fixed Anchors:	183: N 48° 43.206' / W 122° 40.907', Water Depth 0ft, shore near ferry, adjust as needed
Watercourse Description:	Puget Sound, Hale passage

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
1 each	Boat(s)
3 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)
1 each	Vac Truck(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/31/2008

NPS

S anchor point

NPS

View N of ferry dock



SW
N 48° 43' 12.88" W 122° 40' 46.5" WGS 84 07/31/2008 9:34:41 AM

Image-1148: Bank near ferry terminal.

SW
N 48° 43' 19.54" W 122° 40' 49.3" WGS 84 07/31/2008 9:38:53 AM

Image-1149: View from water to north of ferry terminal.

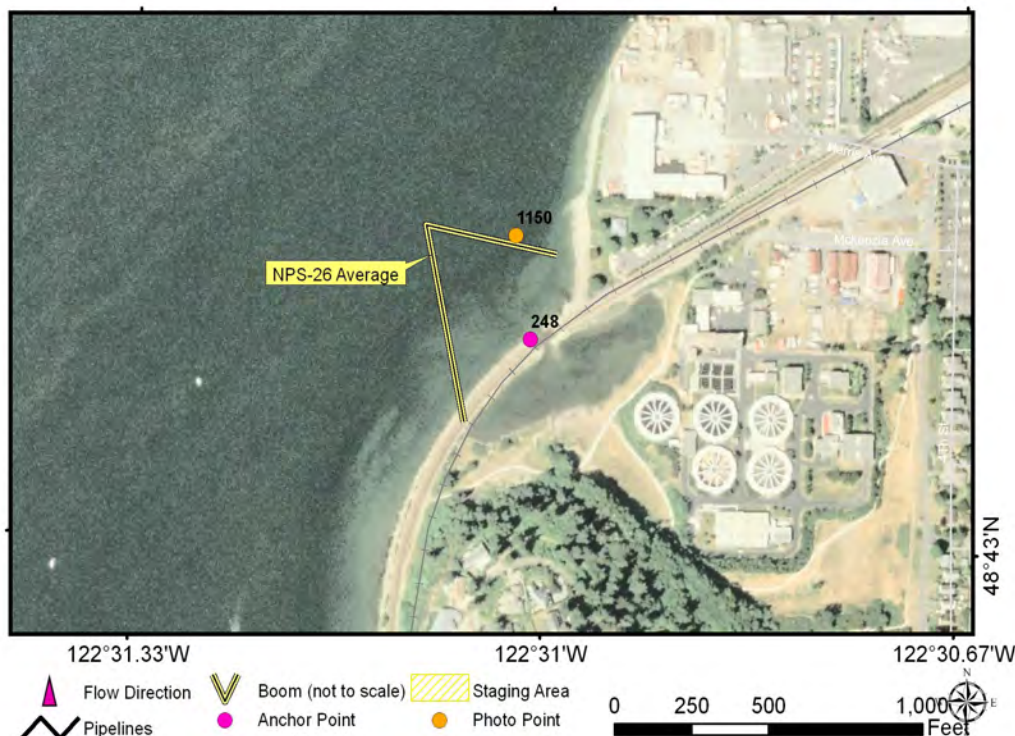
Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 43.159' / W 122° 31.099', Sector Map NPS-6
Strategy Objective:	Exclusion - Keep oil out of lagoon
Implementation:	Deploy boom in chevron configuration in front of gap in railroad trestle to lagoon. Anchor to railroad trestle. Flow through gap may be significant during tidal exchanges. Will need a small workboat to set the anchor at the apex of the chevron.
Site Safety Note:	Seasonally crab pots are in the area.
Field Notes:	Currents can be very strong, shallow waters. Good verizon phone coverage.
Resources Targeted:	baitfish, salmonids (anadromous), sensitive habitat
Fixed Anchors:	248: N 48° 43.104' / W 122° 31.013', Water Depth 0ft, shore near west end of trestle, may be able to use pilings, adjust as needed
Watercourse Description:	Lagoon, gap under trestle can have strong currents

**Suggested Equipment**

Quantity	Description
200 ft	B2 - Contractor Boom
2 each	Danforth(s) or other appropriate anchor
2 each	Work Boat(s)

Suggested Personnel

2	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/31/2008

Site Lat/Long:	N 48° 42.575' / W 122° 31.165', Sector Map NPS-6
Strategy Objective:	Exclusion - Keep oil out of lagoon
Implementation:	Deploy boom in chevron configuration in front of gap in railroad trestle to lagoon. Anchor to railroad trestle. Flow through gap may be significant during tidal exchanges. Will need a small workboat to set the anchor at the apex of the chevron. Takes about 1 hour once on site.
Site Safety Note:	Seasonal crab pots
Field Notes:	Good Verizon phone coverage. Strong tidal influence.
Resources Targeted:	baitfish, salmonids (anadromous), sensitive habitat
Fixed Anchors:	249: N 48° 42.601' / W 122° 31.041', Water Depth 0ft, shore near end of trestle, may be able to use pilings, adjust as needed
Watercourse Description:	Lagoon, strong tidal influence

**Suggested Equipment**

Quantity	Description
200 ft	B2 - Contractor Boom
1 each	Danforth(s) or other appropriate anchor
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/31/2008

NPS

View from water of tressel



NE
N 48° 42' 35.61" W 122° 31' 06.70" UTM 84 07/31/2008 2:20:31 PM

Image-1152: Overview of trestel.

No Image Available

Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 42.332' / W 122° 38.771', Sector Map NPS-5
Strategy Objective:	Collection - Collect oil on shore, use vac truck to remove oil.
Implementation:	Deploy boom from shore, angle to use currents to collect oil at shore for vac truck. Adjust angle and anchors based on real-time conditions. Currents and winds can be strong in this area. All heavy equipment must remain on road or hardened surface.
Field Notes:	Vehicle access to Portage Island is possible when the tidal elevation is + 3.0 ft MLLW.
Resources Targeted:	tribal lands/resources
Watercourse Description:	Puget Sound, open area, currents and winds can be very strong

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
3 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)
1 each	Vac Truck(s)
2 each	Work Boat(s)

Suggested Personnel

2	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/31/2008

NPS

Anchor on beach



NE
N 48° 42' 11.44" W 122° 38' 45.90" UTM 18Q UTM 84 07/31/2008 8:52:23 AM

Image-1187: Collection point, note road in background.

No Image Available

Site Contact Information

High Priority - contact immediate or before entering:
Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.

Closest Address:

98226

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 41.895' / W 122° 39.799', Sector Map NPS-5
Strategy Objective:	Exclusion - Keep oil out of Sunrise Cove.
Implementation:	Secure boom to shore at an angle across bay.
Field Notes:	By boat from Bellingham or Anacortes. Vehicle access by taking Lummi Island ferry and driving south on Nugent Road and east on Sunrise Road. Beach access through private property.
Resources Targeted:	baitfish, sensitive habitat
Fixed Anchors:	178: N 48° 41.940' / W 122° 39.901', Water Depth 0ft, beach on ne side of cove, drive stakes, adjust as needed
Watercourse Description:	Cove

**Suggested Equipment**

Quantity	Description
1200 ft	B2 - Contractor Boom
4 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)
2 each	Work Boat(s)

Suggested Personnel

2	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/31/2008

NPS

S bank anchor

NPS

S bank anchor point



NE
N 48° 41' 55.04" W 122° 39' 40.00" WGS 84 07/31/2008 9:12:40 AM

Image-1143: Overview from boat.

SW
N 48° 41' 54.06" W 122° 39' 39.34" WGS 84 07/31/2008 9:07:42 AM

Image-1142: South bank anchor point

Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 41.773' / W 122° 30.333', Sector Map NPS-6
Strategy Objective:	Exclusion - Keep oil out of creek & North Chuckanut Bay.
Implementation:	Deploy boom in chevron configuration in front of gap in railroad trestle to isolate bay and creek. Anchor to railroad trestle. Flow through gap may be significant during tidal exchanges, adjust angle as needed.
Site Safety Note:	Can have extreme waves, the trestle is on a working rail line.
Field Notes:	Once on site, should take about 1 hour to deploy.
Resources Targeted:	baitfish, salmonids (anadromous), sensitive habitat, shellfish
Fixed Anchors:	250: N 48° 41.851' / W 122° 30.302', Water Depth 0ft, on bank near trestle, adjust as needed
Watercourse Description:	Cove, gap can have strong currents and wind fetch

**Suggested Equipment**

Quantity	Description
400 ft	B2 - Contractor Boom
1 each	Boat(s)
2 each	Danforth(s) or other appropriate anchor

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/29/2008

NPS

Tressel from water



NE
N 48° 41' 47.12" W 122° 30' 17.04" WGS 84 07/29/2008 12:23:12 PM

Image-1110: Overview of trestle.

No Image Available

Site Contact Information

No contact information available.

Closest Address:

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 41.580' / W 122° 37.376', Sector Map NPS-6
Strategy Objective:	Collection - Collect oil as it is moving up or down Hale Passage
Implementation:	Deploy boom at an angle out from the southwest corner of Portage Island to collect the oil. Adjust angle based on real-time conditions.
Field Notes:	Vehicle access to Portage Island is possible when the tidal elevation is + 3.0 ft MLLW.
Resources Targeted:	general fish & wildlife resources
Fixed Anchors:	182: N 48° 41.629' / W 122° 37.265', Water Depth 0ft, beach shore, adjust as needed
Watercourse Description:	Puget Sound, Hale passage

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
1 each	Boat(s)
3 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)
1 each	Vac Truck(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/31/2008

NPS

Anchor on beach



NE
N 48° 41' 38.26" W 122° 37' 54.19" UTM 84 07/31/2008 8:40:14 AM

Image-1147: Anchor along this beach.

No Image Available

Site Contact Information

High Priority - contact immediate or before entering:
Contact Lummi Nation, (W) 360 384-2266, (M) 360-410-1706, (H) 360 384-2225, First number is for police, second and third is for natural resources dept.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 40.365' / W 122° 37.327', Sector Map NPS-6
Strategy Objective:	Exclusion - Keep oil out of Inati Bay.
Implementation:	Secure boom to shore at an angle across bay entrance. Use stakes on beach and in-line anchors along boom to hold in place.
Field Notes:	By boat from Bellingham or Anacortes. No vehicle access.
Resources Targeted:	sensitive habitat - small amount of eelgrass, low priority
Fixed Anchors:	187: N 48° 40.404' / W 122° 37.392', Water Depth 0ft, NW shore, drive stakes, adjust as needed
Watercourse Description:	Bay

**Suggested Equipment**

Quantity	Description
800 ft	B2 - Contractor Boom
1 each	Boat(s)
2 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
1	Laborer (s)

Status: Visited and Not Tested 07/31/2008

NPS

N anchor point outter beach

NPS

S anchor point on upper bank



NW
N 48° 40' 23.96" W 122° 37' 14.94" WGS 84 07/31/2008 1:39:01 PM

Image-1154: North anchor point.

SW
N 48° 40' 24.12" W 122° 37' 15.64" WGS 84 07/31/2008 1:37:44 PM

Image-1153: South anchor point.

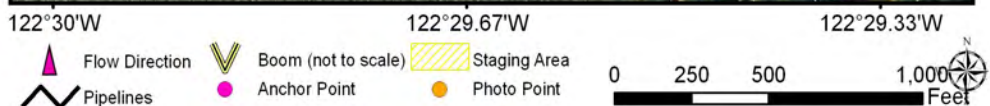
Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 39.154' / W 122° 29.653', Sector Map NPS-9
Strategy Objective:	Exclusion - Keep oil out of Wildcat Cove.
Implementation:	Deploy boom across the entrance of the cove. Place anchors along boom as well as end points. Note: there is a boat ramp in the North cove.
Site Safety Note:	Strong winds, often from the south.
Field Notes:	By boat from the Larrabee State Park or the Padden Creek ramp. Vehicle access to the ramp from I-5 exit 250, go west to Chuckanut Drive (Hwy 11) and follow it south to the park.
Resources Targeted:	shellfish, public lands/facilities, sensitive habitat - Park
Fixed Anchors:	161: N 48° 39.105' / W 122° 29.613', point near south end, can drive stakes or use rocks, adjust as needed
Watercourse Description:	Cove, two small coves with rocky shoreline

**Suggested Equipment**

Quantity	Description
800 ft	B2 - Contractor Boom
1 each	Boat(s)
4 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)

Suggested Personnel

2	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/29/2008

NPS

N anchor use chain around boulders

NPS

S anchor point, stakes on beach



N
N 48° 39' 08.65" W 122° 29' 42.87" WGS 84 07/29/2008 1:25:20 PM

Image-1112: N anchor point, use chain around boulders.

E
N 48° 39' 07.75" W 122° 29' 41.97" WGS 84 07/29/2008 1:23:58 PM

Image-1111: S anchor point, stakes on beach or use rocks.

Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 36.022' / W 122° 25.529', Sector Map NPS-9
Strategy Objective:	Exclusion - Keep oil out of Creek.
Implementation:	Deploy boom across the entrance to the creek as a chevron in front of the railroad trestle. Necessary only at high tide. Can be deployed from land.
Site Safety Note:	Steep bank, traffic, active train track.
Field Notes:	Access on west side of rail tracks, there is a PSE lock on the cable for the dirt access road.
Resources Targeted:	salmonids (anadromous), sensitive habitat, waterfowl
Fixed Anchors:	251: N 48° 36.016' / W 122° 25.483', Water Depth 0ft, N bank near trestle, adjust as needed
Watercourse Description:	Creek, creek mouth with tidal influence



Flow Direction
 Boom (not to scale)
 Staging Area
 Anchor Point
 Photo Point
 Pipelines

0 250 500 1,000 Feet

Suggested Equipment

Quantity	Description
300 ft	B2 - Contractor Boom

Suggested Personnel

2	Laborer (s)
---	-------------

Status: Visited and Not Tested 07/30/2008

NPS

PSE road access Colony Creek



N
N 48° 35' 49.20" W 122° 25' 19.4" WGS 84 07/30/2008 3:32:36 PM

Image-1136: Access road on west side, cable has PSE lock.

NPS

View of Colony Creek from Chuckanut Bridge



SW
N 48° 36' 00.10" W 122° 25' 24.9" WGS 84 07/30/2008 3:23:44 PM

Image-1137: View of creek mouth from bridge.

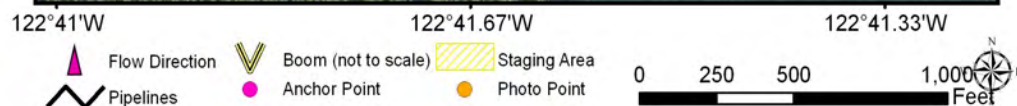
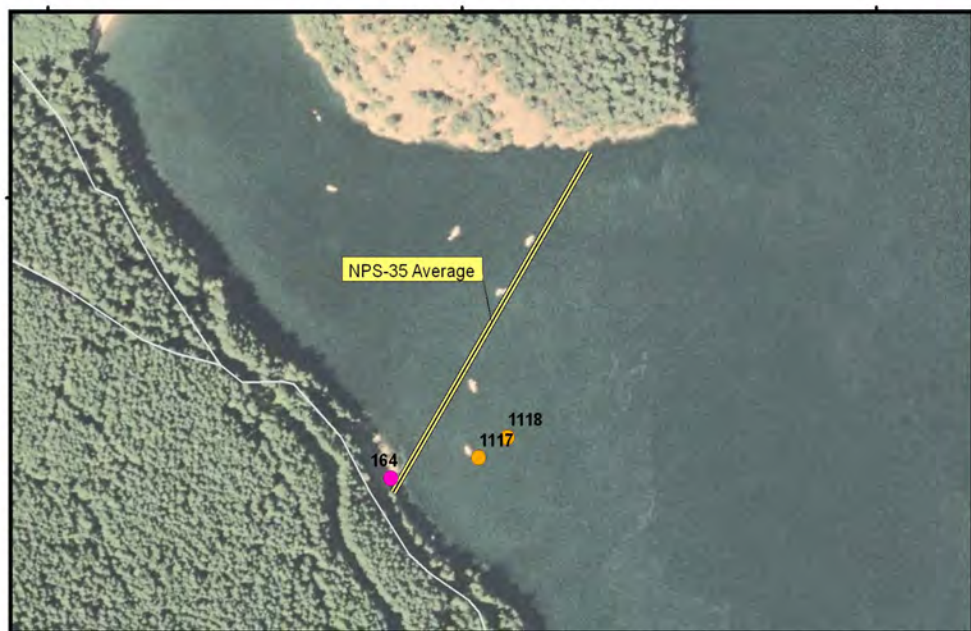
Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 35.278' / W 122° 41.636', Sector Map NPS-7
Strategy Objective:	Exclusion - Keep oil out of the harbor.
Implementation:	Deploy boom from the ramp on the west shoreline. No attachment point is available at the east bluff; anchor the boom in as near as possible to the bluff. Use mooring buoys to help support boom. Non - sheltered cove, expect currents to push boom, place extra anchors as needed.
Field Notes:	By boat from Anacortes or Bellingham. Takes about 2 hours to deploy once on site.
Resources Targeted:	marine birds, sensitive habitat - Park
Fixed Anchors:	164: N 48° 35.199' / W 122° 41.714', small beach area adjust as needed
Watercourse Description:	Cove, non-sheltered,

**Suggested Equipment**

Quantity	Description
1300 ft	B2 - Contractor Boom
2 each	Boat(s)
4 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)

Suggested Personnel

2	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/29/2008

NPS

E anchor point



NW
N 48° 35' 13.25" W 122° 41' 37.20" WGS 84 07/29/2008 11:23:19 AM

Image-1118: Rocky face on east side, anchor as close to face as possible.

NPS

W anchor point near info. board



SW
N 48° 35' 12.61" W 122° 41' 38.61" WGS 84 07/29/2008 11:21:34 AM

Image-1117: West anchor point, small beach near information board.

Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 35.164' / W 122° 33.579', Sector Map NPS-7
Strategy Objective:	Exclusion - Keep oil out of cove.
Implementation:	Deploy boom in a chevron, adjust angle and anchors based on real-time conditions.
Resources Targeted:	baitfish
Fixed Anchors:	190: N 48° 35.217' / W 122° 33.415', Water Depth 0ft, north shore of cove
Watercourse Description:	Cove

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
2 each	Boat(s)
2 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)

Suggested Personnel

2	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/29/2008

NPS

Anchor on beach with stakes



SE
N 48° 35' 10.24" W 122° 33' 30.8" WGS 84 07/29/2008 1:54:03 PM

Image-1167: Anchor on beach with stakes.

No Image Available

Site Contact Information

No contact information available.

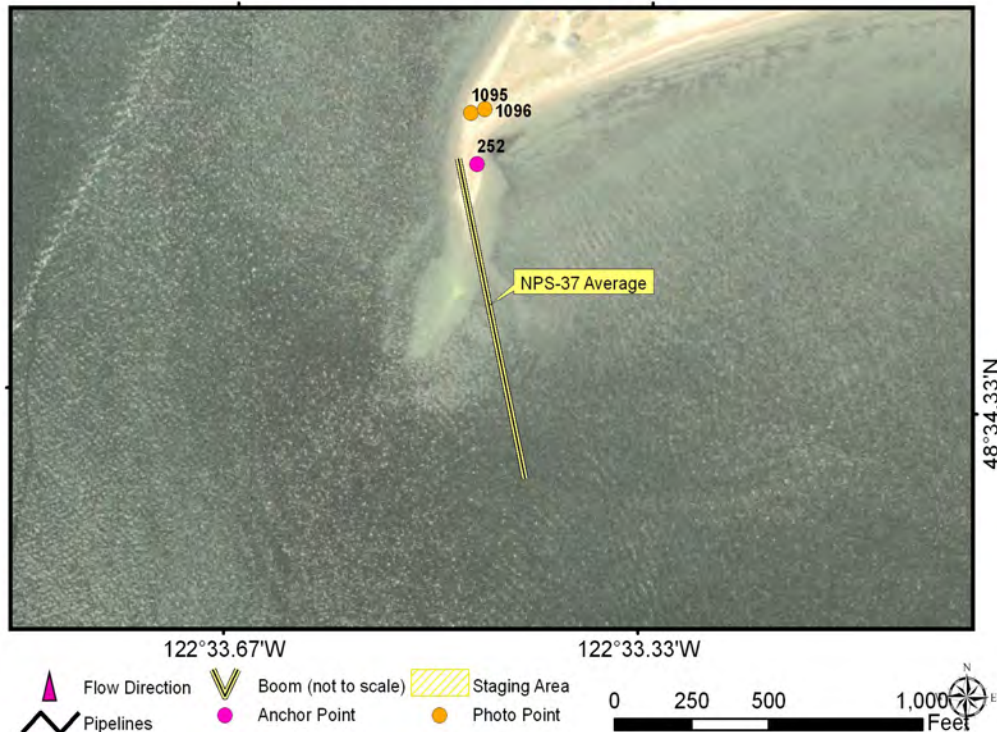
Closest Address:

98232

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 34.375' / W 122° 33.457', Sector Map NPS-7
Strategy Objective:	Collection - Prevent oil from moving up beach from the south.
Implementation:	Deploy boom from end of spit at Camp Kirby to enhance natural collection area. Adjust angle and attachment point based on real time conditions. Vac truck can access beach through Camp Kirby. Truck should bring extra hose for low tide and booster pump. At low tides boom could be deployed from shore.
Site Safety Note:	Pilings, HELO - Above ground power lines
Staging Area:	Camp Kirby, NPS-37-staging
Field Notes:	By boat from Anacortes; vehicle access from I-5 exit 236, go west on Bow Hill Road to Bayview-Edison Road, to Samish Island Road and follow to camp, vac truck access to beach at camp.
Resources Targeted:	general fish & wildlife resources
Fixed Anchors:	252: N 48° 34.453' / W 122° 33.472', end of spit, adjust as needed
Watercourse Description:	Bay, shallow with gravel bottom on spit

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
1 each	Boat(s)
3 each	Stake(s)
1 each	Vac Truck(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/28/2008

NPS

Anchor Point

NPS

Vac. Truck access



S
N 48° 34' 28.72" W 122° 33' 28.65" WGS 84 07/28/2008 8:56:18 AM

Image-1095: Anchor point on spit.



SW
N 48° 34' 28.84" W 122° 33' 27.95" WGS 84 07/28/2008 8:59:24 AM

Image-1096: Vac.Truck access, parking.

Site Contact Information






Responsible party or alternate contact:
Contact Info., Camp Kirby,
Samish Island, (W) (360)733-571,
Camp with beach access and
possible field site.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 34.217' / W 122° 40.226', Sector Map NPS-7
Strategy Objective:	Exclusion - Keep oil out of cove.
Implementation:	Deploy boom across cove opening, adjust angle and anchors based on real-time conditions.
Site Safety Note:	Shallow approach. swirling currents
Field Notes:	Outhouse at park, no other services.
Resources Targeted:	public lands/facilities
Fixed Anchors:	192: N 48° 34.163' / W 122° 40.297', Water Depth 0ft, west shore, adjust as needed
Watercourse Description:	Cove



 Flow Direction
  Boom (not to scale)
  Staging Area
  Anchor Point
  Photo Point

0 250 500 1,000 Feet

Suggested Equipment

Quantity	Description
500 ft	B2 - Contractor Boom
2 each	Boat(s)
2 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)
Suggested Personnel	
2	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/29/2008

NPS

Anchor point



SE
N 48° 34' 11.53" W 122° 40' 14.7" WGS 84 07/29/2008 10:57:58 AM

Image-1172: East anchor point, chain to boulders.

NPS

Anchor point



SW
N 48° 34' 11.79" W 122° 40' 15.1" WGS 84 07/29/2008 10:58:50 AM

Image-1173: West anchor point.

Site Contact Information

High Priority - contact immediate or before entering:
General Number, Washington State Parks, (W) 360-902-8844, (8 a.m. - 5 p.m. Monday - Friday)

Closest Address:

98221

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 34.042' / W 122° 29.480', Sector Map NPS-9
Strategy Objective:	Exclusion - Keep oil out of Alice Bay.
Implementation:	Deploy boom across the north entrance from the south shoreline directly across from the island in front of Siwash slough. The island between the north and south entrances is very low and may not block oil at extreme high tides. Area is shallow and becomes a mudflat at low tide. Winds can be extreme around Scott's Point.
Site Safety Note:	Shallow waters, boot sucking mud.
Field Notes:	Entire area is shallow - need about a 8' tide to even use skiff. On the day of the visit it was a 8.2 tide and the entire island in front of Siwash Slough was still above water.
Resources Targeted:	sensitive habitat, waterfowl
Fixed Anchors:	167: N 48° 34.098' / W 122° 29.535', Water Depth 0ft, shoreline in front of houses along Scott Road, adjust as needed; 168: N 48° 33.981' / W 122° 29.440', Water Depth 0ft, shore near tip of island, adjust as needed
Watercourse Description:	Bay, large shallow bay, mud flat a low tides

**Suggested Equipment**

Quantity	Description
900 ft	B2 - Contractor Boom
3 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)
2 each	Work Boat(s)

Suggested Personnel

2	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/30/2008

NPS

N bank anchor point

NPS

View of island in center of Alice Bay



NW
N 48° 34' 05.28" W 122° 29' 28.35" WGS 84 07/30/2008 5:12:03 PM

Image-1123: North anchor point, in front of houses along Scott Road.

S
N 48° 34' 03.79" W 122° 29' 29.85" WGS 84 07/30/2008 5:07:33 PM

Image-1122: View of island.

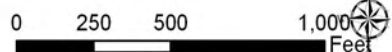
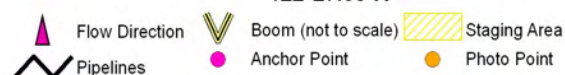
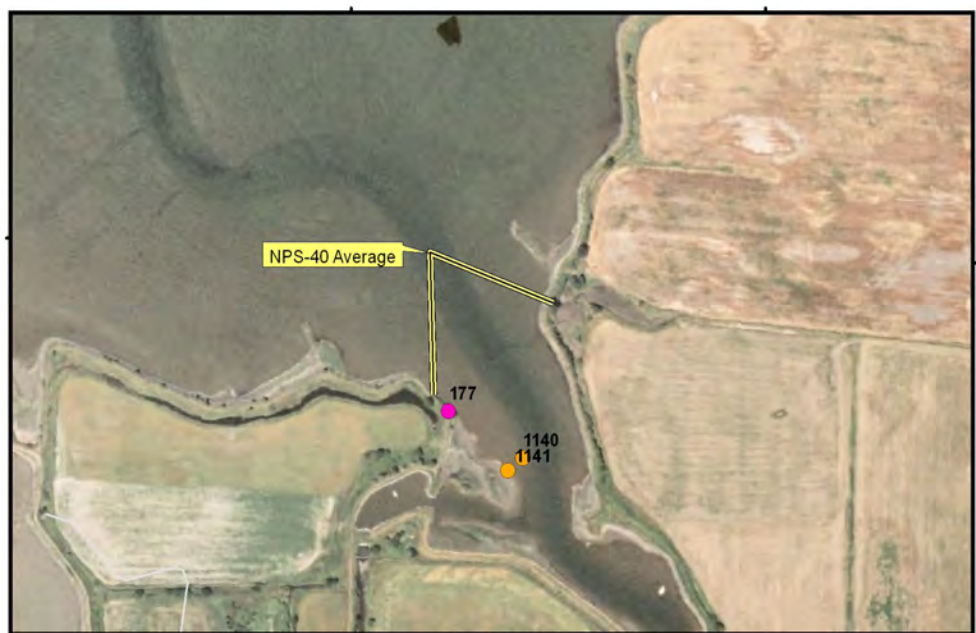
Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 33.999' / W 122° 27.265', Sector Map NPS-9
Strategy Objective:	Exclusion - Keep oil out of Edison Slough.
Implementation:	Deploy boom across entrance to slough in a chevron. Can only be deployed at high tide(+8), boat access only. Area becomes a mudflat at low tide.
Site Safety Note:	Shallow, need about a +8 tide to deploy.
Field Notes:	No vehicle access.
Resources Targeted:	waterfowl, salmonids (anadromous), raptors, sensitive habitat
Fixed Anchors:	177: N 48° 33.919' / W 122° 27.247', Water Depth 0ft, west bank of slough, adjust as needed
Watercourse Description:	Slough, with strong tidal influence, Field Visit Width ~ 500ft

**Suggested Equipment**

Quantity	Description
600 ft	B2 - Contractor Boom
1 each	Boat(s)
1 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/30/2008

NPS

E bank anchor point



SE
N 48° 33' 53.80" W 122° 27' 11.2" UTM 84 07/30/2008 5:37:13 PM

Image-1140: East bank anchor point.

NPS

W bank anchor point



SW
N 48° 33' 53.41" W 122° 27' 11.9" UTM 84 07/30/2008 5:42:27 PM

Image-1141: West bank anchor point.

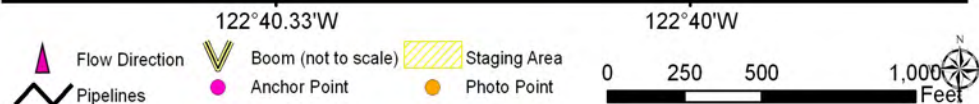
Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 33.909' / W 122° 40.180', Sector Map NPS-7
Strategy Objective:	Exclusion - Keep oil out of cove.
Implementation:	Deploy boom across cove opening. Adjust angle and anchors based on real time conditions.
Site Safety Note:	Shallow approach.
Field Notes:	Outhouse at park no other services.
Resources Targeted:	public lands/facilities
Fixed Anchors:	191: N 48° 33.950' / W 122° 40.135', Water Depth 0ft, shore on point, adjust as needed
Watercourse Description:	Cove

**Suggested Equipment**

Quantity	Description
600 ft	B2 - Contractor Boom
1 each	Boat(s)
2 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/29/2008

NPS

East anchor

NPS

Anchor point, use boulders



NE
N 48° 33' 54.91" W 122° 40' 09.6" WGS 84 07/29/2008 11:06:05 AM

Image-1169: East anchor point.

NW
N 48° 33' 54.91" W 122° 40' 09.5" WGS 84 07/29/2008 11:07:12 AM

Image-1170: West anchor point.

Site Contact Information

High Priority - contact immediate
or before entering:
General Number, Washington
State Parks, (W) 360-902-8844,
(8 a.m. - 5 p.m. Monday - Friday)

Closest Address:

98221

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 33.590' / W 122° 29.190', Sector Map NPS-10
Strategy Objective:	Exclusion - Keep oil out of Alice Bay.
Implementation:	Deploy boom across south entrance at the foot bridge. The island between the north and south entrances is very low and may not block oil at extreme high tides. May be able to deploy from land. Area is shallow and becomes a mudflat at low tide.
Site Safety Note:	Shallow
Field Notes:	May be able to launch Jon Boat from land near channel.
Resources Targeted:	waterfowl, sensitive habitat
Fixed Anchors:	176: N 48° 33.583' / W 122° 29.186', south bank near foot bridge
Watercourse Description:	Bay, shallow, becomes mudflat at most tides

**Suggested Equipment**

Quantity	Description
300 ft	B2 - Contractor Boom
4 each	Stake(s)

Suggested Personnel

2	Laborer (s)
---	-------------

Status: Visited and Not Tested 07/30/2008

NPS

S bank anchor point



N 48° 33' 35.64" W 122° 29' 10.5" WGS 84 07/30/2008 4:54:30 PM

Image-1138: Anchor point near foot bridge.

NPS

N bank anchor point



N 48° 33' 36.08" W 122° 29' 10.5" WGS 84 07/30/2008 4:56:37 PM

Image-1139: North bank anchor point on right.

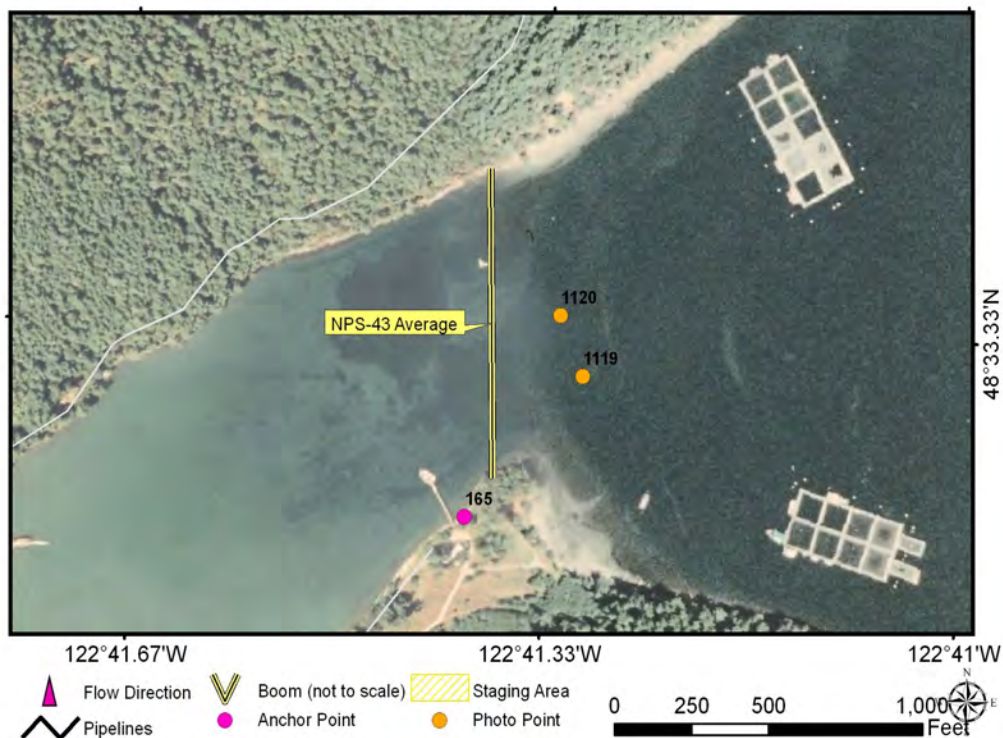
Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 33.337' / W 122° 41.378', Sector Map NPS-8
Strategy Objective:	Exclusion - Keep oil out of the harbor.
Implementation:	Deploy boom across the narrowest part of the entrance to the harbor, from the rocky point on the south side of the harbor, directly north to the north shore. Attach boom to the shore or trees, and anchor to maintain position. Takes about 45 minutes to deploy once on site.
Site Safety Note:	Fish pens and associated vessel traffic.
Field Notes:	By boat from Anacortes or Bellingham.
Resources Targeted:	marine birds - Marbled Murrelets, shellfish - Dungeness crab, sensitive habitat
Fixed Anchors:	165: N 48° 33.240' / W 122° 41.396', south anchor point, adjust as needed
Watercourse Description:	Bay, calm bay

**Suggested Equipment**

Quantity	Description
1000 ft	B2 - Contractor Boom
2 each	Boat(s)
4 each	Stake(s)

Suggested Personnel

2	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/29/2008

NPS

N anchor point

NPS

S anchor point



N
N 48° 33' 20.57" W 122° 41' 19.34" WGS 84 07/29/2008 10:40:08 AM

Image-1120: North anchor point.



SW
N 48° 33' 18.75" W 122° 41' 18.15" WGS 84 07/29/2008 10:37:08 AM

Image-1119: South anchor point.

Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 33.303' / W 122° 27.328', Sector Map NPS-10
Strategy Objective:	Exclusion, Collection - Keep oil from moving up or down stream.
Implementation:	Note: spills may occur upstream or downstream from site. Adjust angle, length of boom, and attachment points based on real-time conditions. If oil present, may be able to collect with vac truck.
Site Safety Note:	Shallow water, derelict vessel near bridge.
Field Notes:	By boat from the Larrabee State Park ramp or from Anacortes; vehicle access from the staging area.
Resources Targeted:	sensitive habitat, waterfowl, salmonids (anadromous)
Fixed Anchors:	169: N 48° 33.309' / W 122° 27.311', North shore near boat ramp, adjust as needed
Watercourse Description:	River with tidal influence

**Suggested Equipment**

Quantity	Description
300 ft	B2 - Contractor Boom
4 each	Stake(s)
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
1	Laborer (s)

Status: Visited and Not Tested 07/30/2008

NPS

Derelict vessel Samish River

NPS

S bank anchor Samish River



S
N 48° 33' 17.29" W 122° 27' 15.9" WGS 84 07/30/2008 4:30:52 PM

Image-1125: Derelict vessel near bridge.

W
N 48° 33' 17.14" W 122° 27' 17.1" WGS 84 07/30/2008 4:28:36 PM

Image-1124: South anchor point, can use pilings.

Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 32.846' / W 122° 34.697', Sector Map NPS-8
Strategy Objective:	Exclusion - Keep oil out of harbor.
Implementation:	Deploy boom across opening to harbor. Adjust angle and number of anchors based on real-time conditions.
Field Notes:	Once on site takes about 1 hour to deploy.
Resources Targeted:	public lands/facilities, resident fish
Fixed Anchors:	189: N 48° 32.874' / W 122° 34.740', NE point, adjust as needed
Watercourse Description:	Cove

**Suggested Equipment**

Quantity	Description
500 ft	B2 - Contractor Boom
1 each	Boat(s)
2 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/29/2008

NPS

Anchor point on both ends of beach



NW
N 48° 32' 51.09" W 122° 34' 46.51" WGS 84 07/29/2008 2:11:01 PM

Image-1165: Overview of Boat Harbor.

No Image Available

Site Contact Information

No contact information available.

Closest Address:






98221

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 32.089' / W 122° 34.511', Sector Map NPS-8
Strategy Objective:	Exclusion - Keep oil out of the bay.
Implementation:	Deploy boom across the bay from the rocky point on the south side of the bay, to the beach to the northwest. Mooring buoys can be used to help support anchor.
Site Safety Note:	Mooring buoy in area, vessel traffic.
Field Notes:	Access by boat from Anacortes or Bellingham. Takes about 2 hours to deploy once on site.
Resources Targeted:	sensitive habitat - has been productive for many years
Fixed Anchors:	163: N 48° 32.012' / W 122° 34.498', shoreline of bay, adjust as needed
Watercourse Description:	Bay, small bay



 Flow Direction
  Boom (not to scale)
  Staging Area
  Anchor Point
  Photo Point

0 250 500 1,000 Feet

Suggested Equipment

Quantity	Description
1000 ft	B2 - Contractor Boom
1 each	Boat(s)
6 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/29/2008

NPS

N anchor point, on beach

NPS

S anchor point, on beach



NW
N 48° 32' 06.39" W 122° 34' 32.81" WGS 84 07/29/2008 2:27:15 PM

Image-1115: N beach anchor point.

S
N 48° 32' 04.69" W 122° 34' 31.91" WGS 84 07/29/2008 2:33:12 PM

Image-1116: South anchor point.

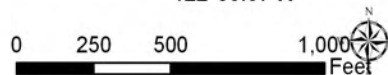
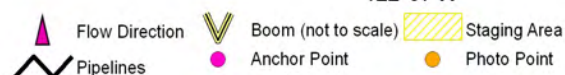
Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 31.267' / W 122° 36.974', Sector Map NPS-8
Strategy Objective:	Exclusion - Keep oil off of the pocket beach.
Implementation:	Deploy boom in a chevron from the north end of "M" Avenue to "O" Avenue. Takes about 45 minutes once on site.
Site Safety Note:	Vessel traffic, pilings
Field Notes:	By boat from Anacortes or Cap Sante. Vehicle access from "N" or "M" Avenue. From Highway 20 in Anacortes, continue north on Commercial Avenue to 4th Street, turn left and go one block to "O" Avenue.
Resources Targeted:	baitfish, habitat restoration/mitigation site
Fixed Anchors:	162: N 48° 31.252' / W 122° 37.023', use upper pilings for attachment
Watercourse Description:	Cove, gravel beach, restoration site

**Suggested Equipment**

Quantity	Description
800 ft	B2 - Contractor Boom
1 each	Boat(s)
1 each	Danforth(s) or other appropriate anchor

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/29/2008

NPS

Anchor point, use piling near shore



NE
N 48° 31' 15.12" W 122° 37' 01.37" WGS 84 07/29/2008 8:49:06 AM

Image-1114: Anchor point, use upper pilings.

NPS

Use upper piling for anchor



E
N 48° 31' 16.64" W 122° 36' 56.57" WGS 84 07/29/2008 8:45:09 AM

Image-1113: Use upper piling for anchor.

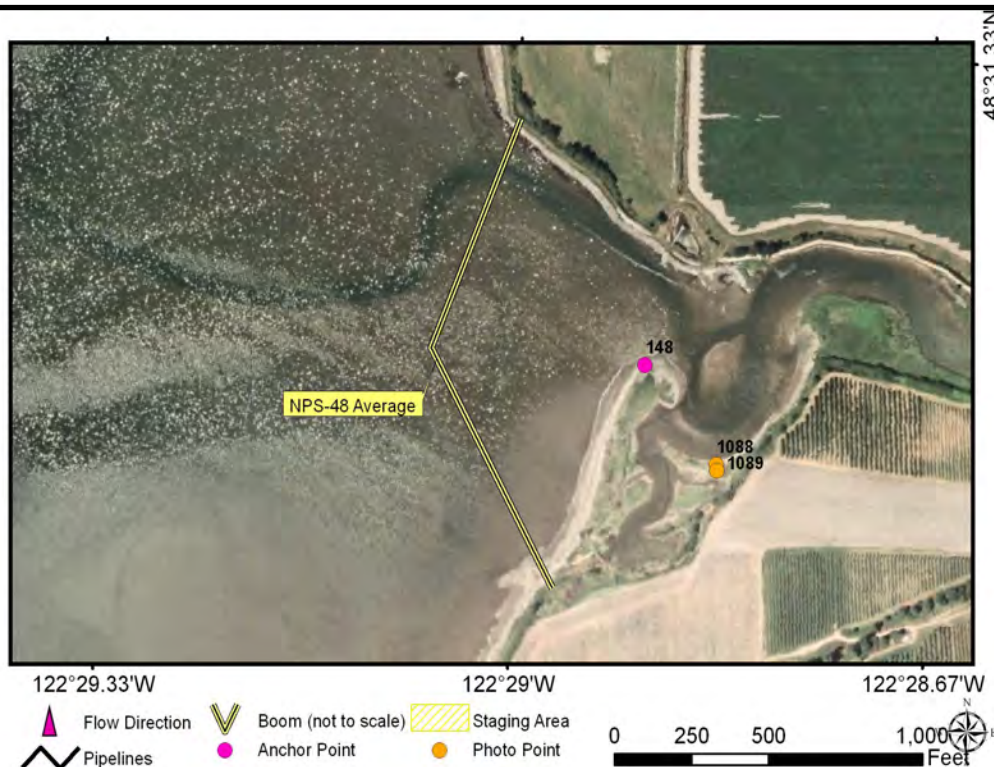
Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 31.175' / W 122° 29.060', Sector Map NPS-10
Strategy Objective:	Collection, Exclusion - Keep oil out of marsh, Collect if feasible.
Implementation:	Deploy boom in a chevron configuration with point of apex facing west. Area is shallow and becomes a mudflat at low tide. You may be able to use pilings as attachment points. To collect by land you would need to bring vac truck thru Merrit Apples. At high tides side channel may also need to be blocked.
Site Safety Note:	pilings, boot sucking mud, seasonal mosquitoes
Field Notes:	By boat from Anacortes, you need a 7' plus tide to reach the area. There is no road access.
Resources Targeted:	waterfowl, shorebirds, salmonids (anadromous), special protection area, sensitive habitat - Padilla Bay National Estuarine Research Reserve
Fixed Anchors:	148: N 48° 31.179' / W 122° 28.895', End of Spit - Depending on the tide maybe able to anchor boom at spit out at an angle to pilings. If side channel will flood, will need to adjust strategy.
Watercourse Description:	Cove, muddy, sticky mud

**Suggested Equipment**

Quantity	Description
1600 ft	B2 - Contractor Boom
2 each	Work Boat(s)

Suggested Personnel

2	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/28/2008

NPS

Overview of site

NPS

Side channel



N
N 48° 31' 07.76" W 122° 28' 50.1" WGS 84 07/28/2008 10:36:51 AM

Image-1088: Overview of site.



SW
N 48° 31' 07.59" W 122° 28' 50.1" WGS 84 07/28/2008 10:45:18 AM

Image-1089: Side channel.

Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 31.124' / W 122° 37.496', Sector Map NPS-8
Strategy Objective:	Exclusion - Keep oil off of the pocket beach and restoration site.
Implementation:	Deploy boom in a chevron along shore from the north end of "H" Avenue to "I" Avenue at the ferry terminal (Guemes Island ferry).
Site Safety Note:	Cable crossing, pilings and ferry traffic
Field Notes:	By boat from Anacortes. Vehicle access from "I" Avenue at the ferry terminal. About 1 hour to deploy once on site.
Resources Targeted:	baitfish, habitat restoration/mitigation site
Fixed Anchors:	158: N 48° 31.143' / W 122° 37.607', W anchor point near rocks in front of house closest to the street.
Watercourse Description:	Cove, small cove with restoration site

**Suggested Equipment**

Quantity	Description
600 ft	B2 - Contractor Boom
1 each	Boat(s)
1 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/29/2008

NPS

E anchor point, pilings near building



SE
N 48° 31' 08.18" W 122° 37' 31.24" WGS 84 07/29/2008 9:03:07 AM

Image-1107: East anchor point up by rocks near building corner.

NPS

W anchor point



S
N 48° 31' 08.56" W 122° 37' 36.43" WGS 84 07/29/2008 8:58:39 AM

Image-1108: West anchor point, near rocks in front of yellow house.

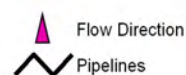
Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 30.692' / W 122° 36.197', Sector Map NPS-8
Strategy Objective:	Exclusion, Collection - Keep oil from moving north into Guemes Channel, and prevent oil from entering marina.
Implementation:	Deploy boom as an open chevron to allow for vessel traffic from marina. Adjust anchor points and angle based on real time conditions. If possible, legs of chevron to be adjusted to collect oil on beach.
Site Safety Note:	Rocks, marina vessel traffic.
Field Notes:	By boat - Cap Sante Park Marina. Potential vehicle access to picnic area on a pedestrian path.
Resources Targeted:	general fish & wildlife resources
Fixed Anchors:	159: N 48° 30.779' / W 122° 36.138', beach on pocket beach near gazebo, should be vac truck accessible via. Bike trail.
Watercourse Description:	Cove, small pocket beach near marina opening, many submerged rocks in area



Flow Direction



Boom (not to scale)



Anchor Point



Staging Area



Photo Point

0 250 500 1,000 Feet

Suggested Equipment

Quantity	Description
1600 ft	B2 - Contractor Boom
6 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)
2 each	Work Boat(s)

Suggested Personnel

2	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/29/2008

NPS

Anchor point near gazebo



NW
N 48° 30' 42.12" W 122° 36' 06.24" WGS 84 07/29/2008 8:29:26 AM

Image-1109: Anchor point on pocket beach.

No Image Available

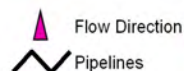
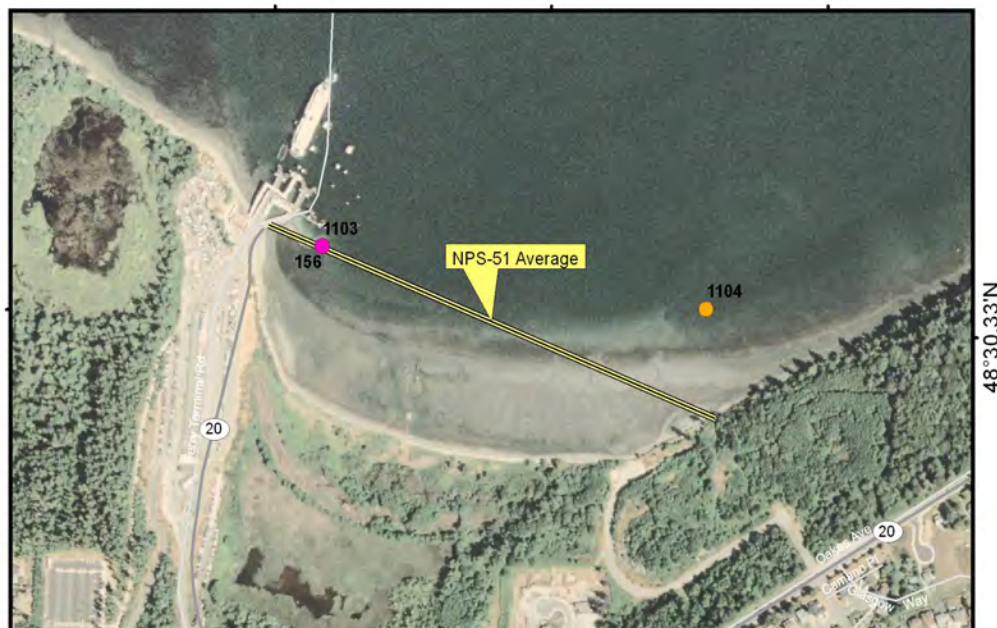
Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 30.335' / W 122° 40.396', Sector Map NPS-8
Strategy Objective:	Exclusion - Keep oil out of Ship Harbor.
Implementation:	Deploy boom from pilings at the ferry terminal to where road comes down to shore southeast of the terminal. Run boom along outside piling line. Keep boom outside mudflats so it does not dry out at low tide. Anchor offshore, not to pilings.
Site Safety Note:	Low Tide - shallow approach, High Tide - pilings, Ferry Traffic
Field Notes:	By boat from Washington Park or Anacortes. Vehicle access to the ferry terminal and to the beach on a road southeast of the terminal, from I-5 to Highway 20 west, follow signs to the ferry terminal.
Resources Targeted:	salmonids (anadromous), herons & other wading birds, sensitive habitat
Fixed Anchors:	156: N 48° 30.389' / W 122° 40.602', shore line near ferry terminal, adjust as needed
Watercourse Description:	Cove, mud flat at low tide



122°40.67'W

122°40.33'W

122°40'W

0 250 500 1,000 Feet

**Suggested Equipment**

Quantity	Description
2600 ft	B2 - Contractor Boom
2 each	Boat(s)
10 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)

Suggested Personnel

2	Boat Operator (s)
4	Laborer (s)

Status: Visited and Not Tested 07/29/2008

NPS

E anchor point



S
N 48° 30' 21.02" W 122° 40' 08.27" WGS 84 07/29/2008 9:30:23 AM

Image-1104: East anchor point

NPS

W anchor point



W
N 48° 30' 23.35" W 122° 40' 36.12" WGS 84 07/29/2008 9:36:24 AM

Image-1103: west anchor point

Site Contact Information

Responsible party or alternate contact:
Washington State Ferries, (W)
360-464-600, Washington State Ferries

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 30.168' / W 122° 29.051', Sector Map NPS-10
Strategy Objective:	Exclusion - Keep oil out of salt marsh. (Extremely time consuming strategy without HELO support.)
Implementation:	Access without HELO support very limited. Deploy boom along the length of the Sullivan Minor salt marsh, can use piling for attachment and support. Area is shallow and becomes a mudflat at low tide.
Site Safety Note:	under most conditions not accessible without HELO support, boot sucking mud, pilings
Field Notes:	Access to this area is very limited due to depth and eel grass beds. By boat from Anacortes, you need a 7' plus tide to reach the area. Or use Helo.
Resources Targeted:	waterfowl, shorebirds, sensitive habitat, special protection area - Padilla Bay National Estuarine Research Reserve
Fixed Anchors:	149: N 48° 30.399' / W 122° 29.076', pilings, be sure to fill gap from shoreline to pilings, other pilings could be used to help support boom
Watercourse Description:	Saltmarsh, large collection of logs, sticky mud

**Suggested Equipment**

Quantity	Description
2800 ft	B2 - Contractor Boom

Suggested Personnel

3	Laborer (s)
---	-------------

Status: Visited and Not Tested 07/28/2008

NPS

Anchor point (Sullivan)



S
N 48° 30' 24.02" W 122° 29' 04.0" WGS 84 07/28/2008 11:33:39 AM

Image-1090: Anchor point, use pilings, adjust as needed.

No Image Available

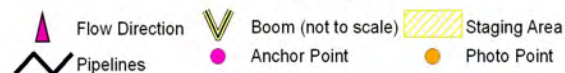
Site Contact Information

High Priority - contact immediate or before entering:
Contact Info., Padilla Bay National Estuarine Research Reserve, (W)
360 428-1558, Padilla Bay National Estuarine Research Reserve

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 30.095' / W 122° 33.553', Sector Map NPS-8
Strategy Objective:	Collection, Deflection - Prevent oil from moving around March Point to the east and south. If oil is present can collect with vac truck from road.
Implementation:	Deploy boom at an angle from the tip of March Point to collect oil moving along the beach from the west. Extend boom to 1500' if it will improve collection efficiency and the currents allow it. Can use concrete blocks and metal post near road for anchor.
Site Safety Note:	Take traffic safety precautions.
Field Notes:	Should only be deployed if trajectory and over flight information warrants it
Resources Targeted:	general fish & wildlife resources
Fixed Anchors:	150: N 48° 30.014' / W 122° 33.467', cement block, metal post along road, adjust as needed
Watercourse Description:	Bay, open section, where winds and currents can be strong

**Suggested Equipment**

Quantity	Description
1500 ft	B2 - Contractor Boom
1 each	Boat(s)
6 each	Danforth(s) or other appropriate anchor

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/28/2008

NPS

Anchor point

NPS

Pull out for vac truck



NE
N 48° 30' 00.70" W 122° 33' 27.3" WGS 84 07/28/2008 1:22:21 PM

SE
N 48° 30' 00.85" W 122° 33' 28.0" WGS 84 07/28/2008 1:24:26 PM

Image-1091: Cement blocks and metal post for anchor point.

Image-1092: Pull out for Vac Truck.

Site Contact Information






High Priority - contact immediate or before entering:
Contact Info., Tesoro Refinery,
(W) 360 293 9119, Tesoro Refinery

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 30.081' / W 122° 41.546', Sector Map NPS-8
Strategy Objective:	Exclusion - Keep oil off of Sunset Beach.
Implementation:	Deploy boom from the rocks at each end of the gravel beach in Washington Park (at the boat ramp).
Site Safety Note:	Underwater cable crossing near by.
Field Notes:	Boat access from Washington Park or Anacortes. Vehicle access to the park from I-5 to Highway 20 west (follow signs to ferry), turn left onto Sunset Avenue to park entrance.
Resources Targeted:	baitfish
Fixed Anchors:	157: N 48° 30.032' / W 122° 41.589', anchor point along shore, rocky substrate, adjust as needed
Watercourse Description:	Cove, rocky outcropping on ends



 Flow Direction
  Boom (not to scale)
  Staging Area
  Anchor Point
  Photo Point

0 250 500 1,000 Feet

Suggested Equipment

Quantity	Description
1100 ft	B2 - Contractor Boom
1 each	Boat(s)
3 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/29/2008

NPS

SW anchor point

NPS

N anchor point



SW
N 48° 30' 01.91" W 122° 41' 35.34" WGS 84 07/29/2008 9:55:41 AM

Image-1106: Other anchor point.

NE
N 48° 30' 05.99" W 122° 41' 32.56" WGS 84 07/29/2008 9:53:26 AM

Image-1105: Rocky shoreline near anchor point.

Site Contact Information






High Priority - contact immediate
or before entering:
Washington Park, City of
Anacortes, (W) 360 293-1927

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 29.674' / W 122° 33.251', Sector Map NPS-8
Strategy Objective:	Exclusion - Keep oil off near shore area and beach.
Implementation:	Starting about 1000 ft south of the small private boat ramp on the NE corner of March Point, deploy the boom along the shoreline 100 -300 feet off the beach in a southerly direction, and bring the south end back in and anchor on the beach. Add boom as it becomes available and time allows.
Site Safety Note:	Take traffic precautions.
Field Notes:	By boat from the Swinomish Channel ramp, or from Anacortes. Vehicle access from March Point Road. Most of the beach becomes exposed at low tide, may need helicopter support.
Resources Targeted:	baitfish - surf smelt
Fixed Anchors:	253: N 48° 29.728' / W 122° 33.360', shoreline about 1000 ft south of small private boat launch, adjust as needed
Watercourse Description:	Bay, open area where winds can be very strong



 Flow Direction
  Boom (not to scale)
  Staging Area
  Anchor Point
  Photo Point

0 250 500 1,000 Feet



Suggested Equipment

Quantity	Description
2000 ft	B2 - Contractor Boom
10 each	Danforth(s) or other appropriate anchor
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/28/2008



Image-1093: Oblique shot of shoreline, showing northern anchor point.

NPS

Boat ramp, not always cleared



NE
N 48° 29' 54.15" W 122° 33' 25.4" WGS 84 07/28/2008 1:14:40 PM
Image-1094: Small boat ramp for staging.

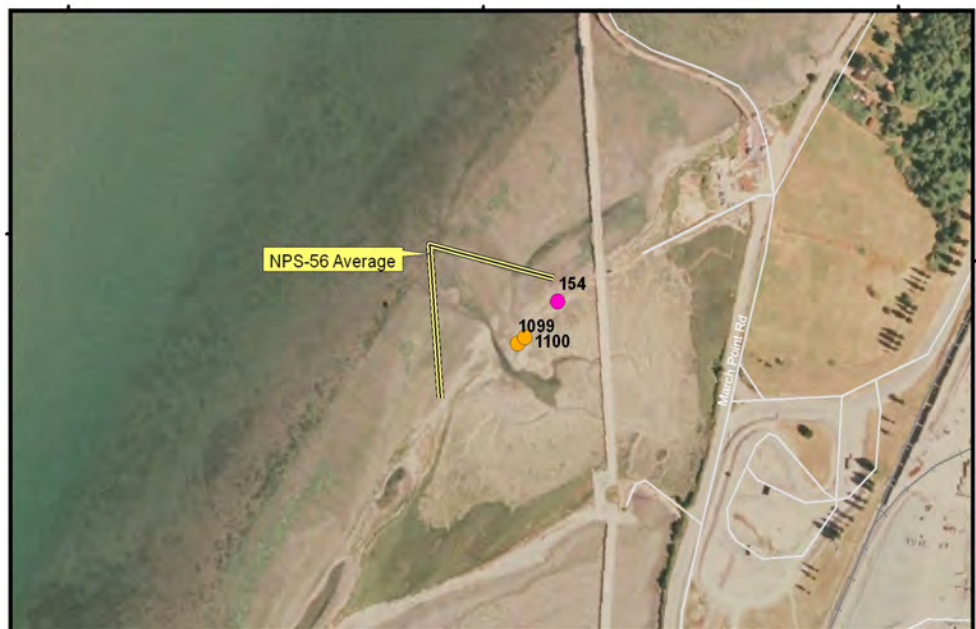
Site Contact Information

High Priority - contact immediate or before entering:
Contact Info., Tesoro Refinery,
(W) 360 293 9119, Tesoro Refinery

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 29.665' / W 122° 34.693', Sector Map NPS-8
Strategy Objective:	Exclusion - Keep oil out of tidal lagoon.
Implementation:	Deploy boom across the entrance to the lagoon on the north shore of Crandall Spit. Can be deployed from land.
Site Safety Note:	Pipeline in area.
Field Notes:	Recommend By boat from Anacortes. Vehicle access on March Point Road is possible, but crossing under pipeline is difficult.
Resources Targeted:	baitfish, sensitive habitat, shellfish
Fixed Anchors:	154: N 48° 29.641' / W 122° 34.601', Water Depth 0ft, north anchor point, adjust as needed based on real-time conditions
Watercourse Description:	Lagoon, small tidal lagoon

**Suggested Equipment**

Quantity	Description
200 ft	B2 - Contractor Boom
1 each	Boat(s)
4 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/28/2008

NPS

Anchor point

NPS

Over view of channel



N 48° 29' 37.16" W 122° 34' 37.9" WGS 84 07/28/2008 1:55:54 PM

Image-1099: Anchor Point



N 48° 29' 37.35" W 122° 34' 37.6" WGS 84 07/28/2008 1:58:26 PM

Image-1100: Overview of site, note pipeline.

Site Contact Information

High Priority - contact immediate or before entering:
Shell Refinery, Shell Refinery, (W) 360-293-1745, (H) 360-293-1707

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 29.312' / W 122° 34.802', Sector Map NPS-8
Strategy Objective:	Exclusion - Keep oil out of cove between Crandall Spit and "Shell Campground."
Implementation:	Requires a +a 5 rising tide. Anchor with stakes at SE end of the spit, angle boom across to "Shell Campground", anchor at "Shell Campground" with stakes. Place additional anchors along boom as real-time conditions require.
Site Safety Note:	Land access requires crossing a number of pipelines (very difficult at high tide), recommend access from the water.
Field Notes:	Good cell phone coverage. Can get shallow draft boat in at most tides.
Resources Targeted:	baitfish
Fixed Anchors:	153: N 48° 29.351' / W 122° 34.933', SE end of spit adjust as needed
Watercourse Description:	Cove, small cove with muddy bottom

**Suggested Equipment**

Quantity	Description
1400 ft	B2 - Contractor Boom
1 each	Boat(s)
3 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/28/2008

NPS

View across Fidalgo Bay



NW
N 48° 29' 15.13" W 122° 34' 34.90" WGS 84 07/28/2008 3:14:29 PM

Image-1098: Anchor point at Shell Campground.

NPS

View across channel from spit



SE
N 48° 29' 27.63" W 122° 34' 48.21" WGS 84 07/28/2008 2:27:56 PM

Image-1097: Anchor point on end of spit.

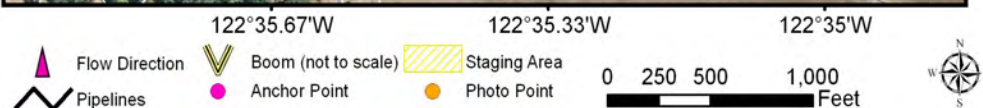
Site Contact Information

High Priority - contact immediate
or before entering:
Shell Refinery, Shell Refinery, (W)
360-293-1745, (H) 360-293-1707

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 29.045' / W 122° 35.379', Sector Map NPS-8
Strategy Objective:	Exclusion - Keep oil away from Weaverling Spit.
Implementation:	Deploy boom in a chevron configuration with a 1000' leg from the railroad causeway to the tip of Weaverling Spit, and a 3000' leg from the tip of the spit to the beach near Highway 20.
Site Safety Note:	much of the spit shoreline is a mud flat at low tides
Field Notes:	Good cell phone coverage, campground has bathrooms, water and even a boat launch.
Resources Targeted:	baitfish, waterfowl, shellfish, marine birds, sensitive habitat, tribal lands/resources
Fixed Anchors:	231: N 48° 29.191' / W 122° 35.782', NW anchor point, in-front of house, adjust as needed; 232: N 48° 28.841' / W 122° 35.077', SE anchor point at bike trail, adjust as needed
Watercourse Description:	Cove, with spit that has high resource value

**Suggested Equipment**

Quantity	Description
4000 ft	B2 - Contractor Boom
2 each	Boat(s)
8 each	Danforth(s) or other appropriate anchor
12 each	Stake(s)

Suggested Personnel

2	Boat Operator (s)
4	Laborer (s)

Status: Visited and Not Tested 08/01/2008

NPS

boat ramp, and boom trailer off load site



NE
N 48.483708° W 122.590267° WGS 84 08/01/2008 4:54:33 PM

Image-1259: Boat launch at spit

NPS

anchor on rip raft near structure



NW
N 48.485186° W 122.595383° WGS 84 08/01/2008 5:10:30 PM

Image-1258: NW anchor point

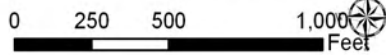
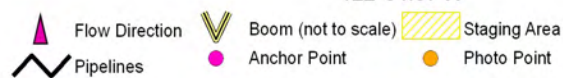
Site Contact Information

High Priority - contact immediate
or before entering:
Woodward Christine, Samish
Indian Nation, (H) 360-661-6336,
Samish Indian Nation

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 28.787' / W 122° 34.608', Sector Map NPS-8
Strategy Objective:	Exclusion, Containment - Spill north of the trestle - Prevent oil from entering south Fidalgo Bay. Spill south of trestle - Keep oil in cove.
Implementation:	Deploy boom in a chevron configuration across the causeway opening . Adjust angle based on spill origin and currents. Recommend double anchors also use the railroad trestle, and pilings in mid-channel. The tidal current is extremely strong in this area. Anchor boom on both sides to prevent boom damage. Avoid anchoring boom near the submerged wreck along the eastern shore. This area is extremely shallow and becomes mud flat at low tide.
Site Safety Note:	Sunken barge to the north of the bike path tressel. Heavy currents, will need double anchors.
Field Notes:	By boat from Anacortes. Vehicle access on March Point Road, small pull out near abandoned train line, near south bank of bike path.
Resources Targeted:	waterfowl, baitfish, shorebirds, marine birds, sensitive habitat, shellfish
Fixed Anchors:	313: N 48° 28.622' / W 122° 34.367', Water Depth 0ft, Drive stakes or use trestle pilings - adjust as needed
Watercourse Description:	Cove, Edge becomes mud flat at low tides, area can have fast currents., Rocky shoreline, mud bottom.

**Suggested Equipment**

Quantity	Description
2 each	Anchor(s) for strong currents - ie. SARCA
2300 ft	B2 - Contractor Boom
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
1	Laborer (s)

Status: Visited and Not Tested 07/28/2008

NPS

View from S end bike trail



N
N 48° 28' 37.31" W 122° 34' 21.9" WGS 84 07/28/2008 2:56:20 PM

Image-1084: Anchor point on south end of trestle

NPS

View from middle of trail to pilings



N
N 48° 28' 43.01" W 122° 34' 39.5" WGS 84 07/28/2008 3:03:44 PM

Image-1085: View from middle of trestle to pilings in channel.

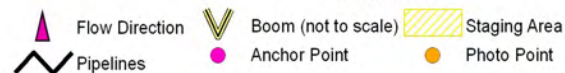
Site Contact Information

High Priority - contact immediate or before entering:
Shell Refinery, Shell Refinery, (W) 360-293-1745, (H) 360-293-1707
Woodward Christine, Samish Indian Nation, (H) 360-661-6336, Samish Indian Nation

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 28.027' / W 122° 28.619', Sector Map NPS-10
Strategy Objective:	Exclusion - Keep oil out of slough and side channel.
Implementation:	Deploy boom in a chevron configuration with apex pointing north. Deploy 400' for the west leg from the west side of the slough entrance directly north to the east end of Dike Island and to the apex anchor point in the main channel.
Site Safety Note:	Pilings, boot sucking mud, winds and tidal push
Staging Area:	Swinomish Channel (under Highway 20 bridge), NPS-66-staging
Field Notes:	By boat from the Swinomish Channel ramp.
Resources Targeted:	waterfowl, shorebirds, salmonids (anadromous), special protection area, sensitive habitat - Padilla Bay National Estuarine Research Reserve
Fixed Anchors:	155: N 48° 27.954' / W 122° 28.476', Water Depth 0ft, anchor point on east bank of main channel, adjust as needed based on real-time conditions
Watercourse Description:	Slough, can have strong wind and tidal push

**Suggested Equipment**

Quantity	Description
1600 ft	B2 - Contractor Boom
8 each	Danforth(s) or other appropriate anchor
8 each	Stake(s)
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
1	Laborer (s)

Status: Visited and Not Tested 07/28/2008

NPS

View from island to point



SW
N 48° 28' 05.08" W 122° 28' 37.74" WGS 84 07/28/2008 4:44:32 PM

Image-1102: View from east bank anchor point across channel to spit.

NPS

Anchor point from spit across side channel



S
N 48° 28' 00.49" W 122° 28' 42.84" WGS 84 07/28/2008 4:36:02 PM

Image-1101: View from spit across side channel.

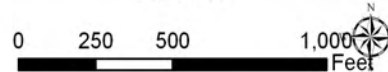
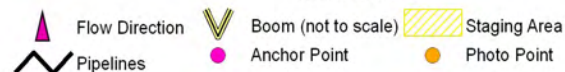
Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 28.013' / W 122° 32.203', Sector Map NPS-8
Strategy Objective:	Exclusion - Keep oil out of marsh.
Implementation:	Use 4X4 sheet of plywood and sorbents to block culvert. Emergency HPA required. Can deploy from road, no need for boat.
Site Safety Note:	Use traffic safety precautions.
Field Notes:	Pull out spot about 50 yards south of culvert. Emergency HPA required - see contact information.
Resources Targeted:	sensitive habitat, herons & other wading birds, shorebirds, salmonids (anadromous)
Watercourse Description:	Saltmarsh

**Suggested Equipment**

Quantity	Description
1 each	4 x 4 ft Plywood
25 ft	Sorbent Boom
4 each	Stake(s)

Suggested Personnel

2	Laborer (s)
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Status: Visited and Not Tested 07/29/2008



Image-1162: Overview of marsh and culvert.



Image-1163: Culvert close up.

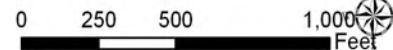
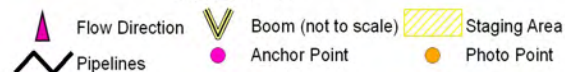
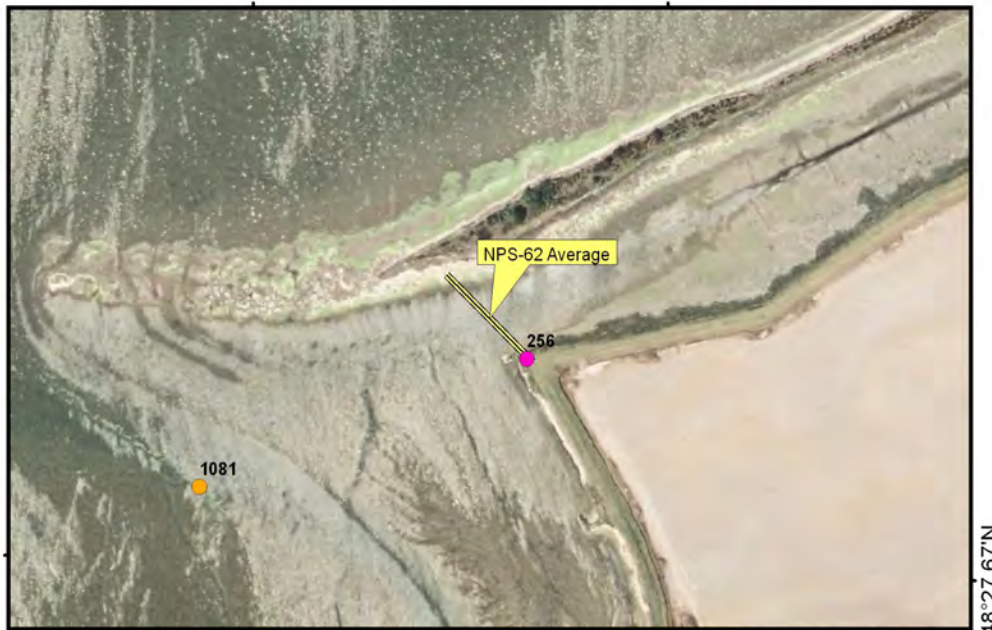
Site Contact Information

High Priority - contact immediate or before entering:
WDFW Emergency Hydraulic Project Approval, (M) 360-534-8233, 24-hour pager number. Responders must receive Emergency HPA from the WDFW prior to using culvert blocks and underflow dams.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 27.792' / W 122° 29.471', Sector Map NPS-10
Strategy Objective:	Exclusion - Keep oil out of area behind Dike Island
Implementation:	Deploy boom across western opening between Dike Island and the mainland. Area is shallow and becomes a mudflat at low tide.
Field Notes:	By boat from the Swinomish Channel ramp. No vehicle access. May need helicopter support.
Resources Targeted:	salmonids (anadromous), shorebirds, sensitive habitat
Fixed Anchors:	256: N 48° 27.773' / W 122° 29.440', SE anchor point off of tip of mainland, adjust as needed
Watercourse Description:	Estuaries, side opening to channel

**Suggested Equipment**

Quantity	Description
500 ft	B2 - Contractor Boom
1 each	Boat(s)
4 each	Stake(s)

Suggested Personnel

1	Boat Operator (s)
1	Laborer (s)

Status: Visited and Not Tested 07/28/2008



Image-1260: Strategy overview

No Image Available

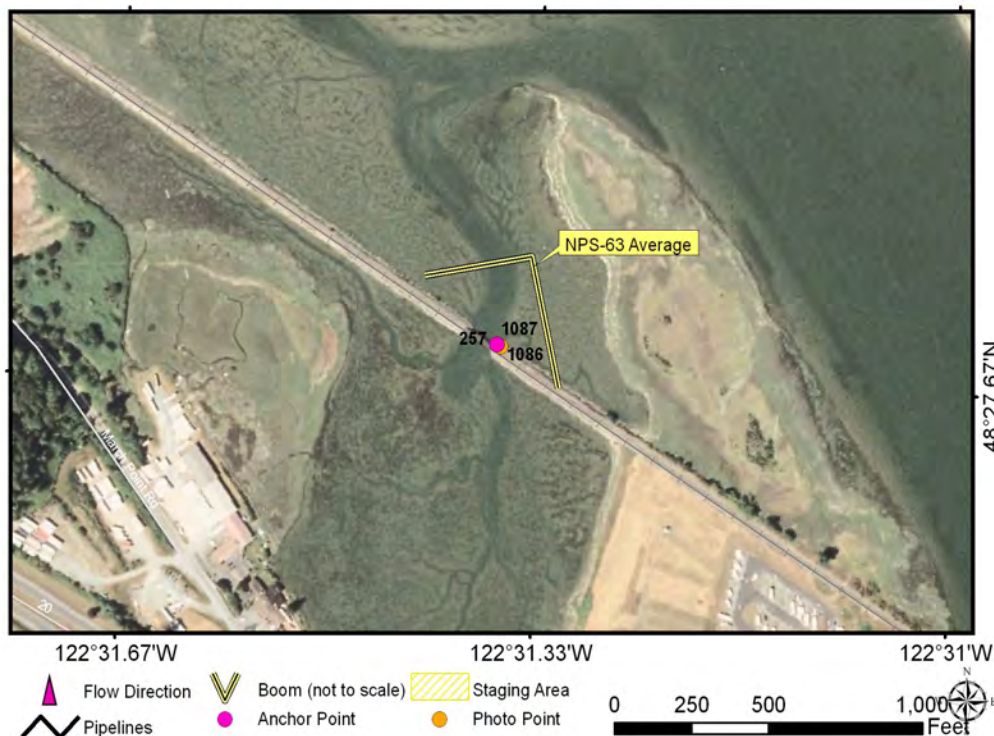
Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 27.730' / W 122° 31.347', Sector Map NPS-10
Strategy Objective:	Exclusion - Keep oil out of the marsh.
Implementation:	NOTE: Heavy tidal influence - need +7 tide to set anchor at apex. Deploy boom in chevron configuration in front of gap in railroad trestle to lagoon. Anchor to railroad trestle. Flow through gap may be significant during tidal exchanges. Will need a small workboat to set the anchor at the apex of the chevron. (Terasen has small boom and an ATV which could be used.)
Site Safety Note:	Active train track, 'boot sucking mud', car traffic due to casino activity, extreme tidal influence.
Staging Area:	Rail Road Trestle, Whitemarsh Junction, NPS-63-staging
Field Notes:	By boat from the Swinomish Channel ramp. Vehicle access from I-5 to Highway 20, go west and exit at the Swinomish Casino, follow the dirt road along the railroad tracks on the east side of trestle.
Resources Targeted:	waterfowl - Black Brant, Great Blue Heron rookery near by, sensitive habitat - Eelgrass and saltmarsh
Fixed Anchors:	257: N 48° 27.687' / W 122° 31.365', Corner of train trestle - adjust as needed
Watercourse Description:	Saltmarsh, strong tidal flush, sticky mud bottom



Suggested Equipment

Quantity	Description
1 each	Anchor(s) for strong currents - ie. SARCA
200 ft	B2 - Contractor Boom
1 each	Work Boat(s)

Suggested Personnel

1	Boat Operator (s)
1	Laborer (s)

Status: Visited and Not Tested 07/28/2009

NPS

RR track for access

NPS

View from tracks towards channel



SE
N 48° 27' 41.18" W 122° 31' 21.7" WGS 84 07/28/2008 12:42:00 PM

Image-1087: RR track for land access.



N
N 48° 27' 41.23" W 122° 31' 21.9" WGS 84 07/28/2008 12:37:30 PM

Image-1086: View from trestle towards channel.

Site Contact Information

Responsible party or alternate contact:
Swinomish Police, Swinomish Police Department, (W) 360-428-3211, (H) 911, Swinomish Police Department is located at 17353 Reservation Rd., La Conner Washington.
Tony Basabe, Swinomish Tribe Air Monitoring, (W) 360-466-2512, run an air monitoring station near site






Closest Address:

Driving Directions:

Cannot Drive to Site

Site Lat/Long:	N 48° 27.685' / W 122° 29.670', Sector Map NPS-10
Strategy Objective:	Exclusion - Keep oil out of slough.
Implementation:	Deploy two 1300' legs of boom to form a chevron with the apex facing northwest. Area is shallow and becomes a mudflat at low tide. You will need a shallow draft boat and chest waders, recommend a tide between +4 and +6. Extreme tidal influence on both current and depth.
Site Safety Note:	Pilings, boat traffic, shallow water - recommend a minimum +4 tide, use shallow draft boat.
Staging Area:	Swinomish Channel (under Highway 20 bridge), NPS-65-staging
Field Notes:	By boat from the Swinomish Channel ramp. No vehicle access. May need helicopter support. Requires about 20 minutes by boat without boom, to get to site from ramp.
Resources Targeted:	waterfowl, shorebirds, special protection area, sensitive habitat - Padilla Bay National Estuarine Research Reserve
Fixed Anchors:	144: N 48° 27.527' / W 122° 29.726', Water Depth 0ft, shoreline at point
Watercourse Description:	Slough, can have strong tidal push, shallow, entire area becomes mud flat at low tides



 Flow Direction
  Boom (not to scale)
  Staging Area
  Anchor Point
  Photo Point

0 250 500 1,000 Feet

Suggested Equipment

Quantity	Description
2600 ft	B2 - Contractor Boom
6 each	Danforth(s) or other appropriate anchor
6 each	Stake(s)
2 each	Work Boat(s)

Suggested Personnel

2	Boat Operator (s)
4	Laborer (s)

Status: Visited and Not Tested 07/28/2008

NPS

View from water to E side anchor point



E
N 48° 27' 50.65" W 122° 29' 37.20" WGS 84 07/28/2008 4:18:56 PM

Image-1080: View from water to E side anchor point



Image-1081: Aerial view of boom placement

Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 27.365' / W 122° 30.824', Sector Map NPS-10
Strategy Objective:	Collection, Deflection - Keep oil from moving into the Swinomish Channel.
Implementation:	Deploy boom on E side of the channel N of Highway 20 bridge to deflect the oil moving into the channel to collection sites along the shoreline. Area is vac truck accessible. Adjust length and angle based on real-time conditions. Extreme tidal influence on both current and depth.
Field Notes:	Should only be deployed if trajectory and over flight information warrants it.
Resources Targeted:	salmonids (anadromous), shorebirds
Fixed Anchors:	234: N 48° 27.331' / W 122° 30.787', E bank anchor point, adjust as needed
Watercourse Description:	Estuaries, channel has strong tidal influence

**Suggested Equipment**

Quantity	Description
2000 ft	B2 - Contractor Boom
1 each	Boat(s)
6 each	Danforth(s) or other appropriate anchor
1 each	Vac Truck(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/28/2008



Image-1261: Strategy overview

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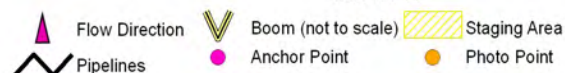
Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

Site Lat/Long:	N 48° 27.335' / W 122° 30.919', Sector Map NPS-10
Strategy Objective:	Collection, Deflection - Keep oil from moving into the Swinomish Channel.
Implementation:	Deploy boom on west side of the channel under the Highway 20 bridge to deflect the oil moving into the channel to collection site along the shoreline. Vac truck accessible. Extreme tidal influence on both current and depth.
Site Safety Note:	Strong tidal currents, recreational boat traffic
Field Notes:	Area does have vac truck access. Extreme tidal influence on both current and depth.
Resources Targeted:	salmonids (anadromous), shorebirds
Fixed Anchors:	235: N 48° 27.300' / W 122° 30.943', W bank anchor point, under bridge, adjust as needed
Watercourse Description:	Estuaries, channel has strong tidal influence

**Suggested Equipment**

Quantity	Description
2000 ft	B2 - Contractor Boom
1 each	Boat(s)
6 each	Danforth(s) or other appropriate anchor
4 each	Stake(s)
1 each	Vac Truck(s)

Suggested Personnel

1	Boat Operator (s)
2	Laborer (s)

Status: Visited and Not Tested 07/28/2008

NPS

Boat launch

NPS

View from W bank to pilings



W
N 48° 27' 18.75" W 122° 30' 56.9" WGS 84 07/28/2008 5:12:31 PM

NE
N 48° 27' 18.80" W 122° 30' 57.9" WGS 84 07/28/2008 5:11:51 PM

Image-1264: Boat launch on east bank under HWY 20 bridge

Image-1263: View north towards channel from west bank

Site Contact Information

No contact information available.

Closest Address:**Driving Directions:**

Cannot Drive to Site

APPENDIX C - DETAILED STAGING LOCATIONS AND DESCRIPTIONS

Lat/Long:	N 48° 46.409' / W 122° 36.038', Sector Map NPS-6
Site Contacts:	High Priority: Contact before entering or immediate notification required. Contact Lummi Nation, W 360 384-2266, M 360-410-1706, H 360 384-2225

**Closest Address:****Driving Directions:**

Cannot Drive to Site

Strategy Sites Served:

NPS-18(Marine)

Lat/Long:	N 48° 34.375' / W 122° 33.457', Sector Map NPS-7
Staging Description:	Could use camp for other sites. Camp has power, water and accomadations.
Site Contacts:	Responsible party or alternate contact: Contact Info., Camp Kirby, Samish Island, W (360)733-571

**Closest Address:****Driving Directions:**

Cannot Drive to Site

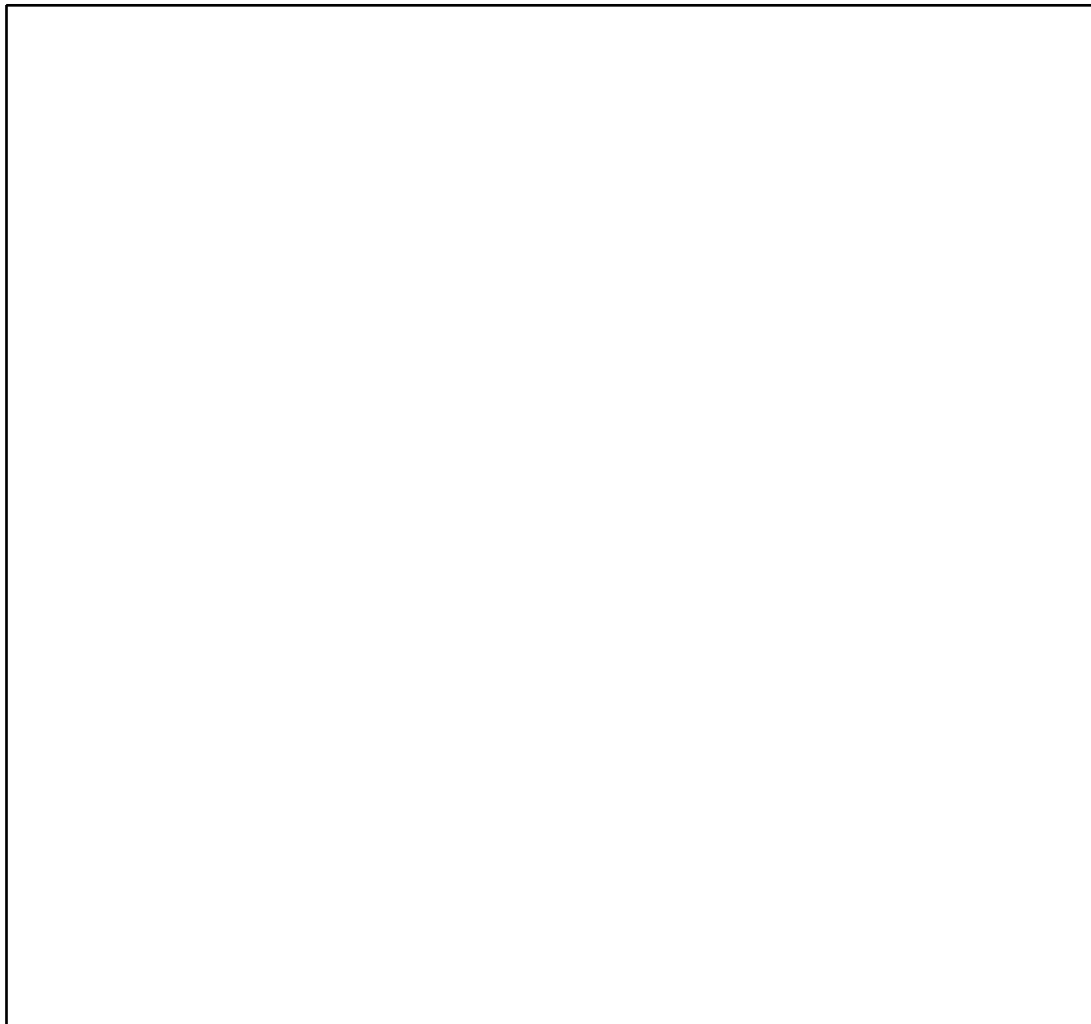
Strategy Sites Served:

NPS-37(Marine)

Lat/Long:	N 48° 27.730' / W 122° 31.347', Sector Map NPS-10
Staging Description:	Could use Swinomish Casino parking lot.
Site Contacts:	Responsible party or alternate contact: Swinomish Police, Swinomish Police Department, W 360-428-3211, H 911 Tony Basabe, Swinomish Tribe Air Monitoring, W 360-466-2512

	Closest Address: 	Strategy Sites Served: NPS-63(Marine)
	Driving Directions: Cannot Drive to Site	

Lat/Long:	N 48° 27.365' / W 122° 30.824', Sector Map NPS-10
Staging Description:	By boat from the Swinomish Channel ramp. Vehicle access from I-5 to Highway 20, go west to the boat ramp on the east side of the channel. Vac truck access on both sides of the channel.
Site Contacts:	

**Closest Address:****Driving Directions:**

Cannot Drive to Site

Strategy Sites Served:

NPS-64(Marine)

Lat/Long:	N 48° 27.335' / W 122° 30.919', Sector Map NPS-10
Staging Description:	By boat from the Swinomish Channel ramp. Vehicle access from I-5 to Highway 20, go west to the boat ramp on the east side of the channel. Vac truck access on both sides of the channel.
Site Contacts:	

Closest Address:**Strategy Sites Served:**

NPS-60(Marine)

Driving Directions:

Cannot Drive to Site

Lat/Long:	N 48° 45.050' / W 122° 29.250', Sector Map NPS-6
Staging Description:	Dock: Water depth 10 ft. at MLLW. Power: Electricity: 110/220v located throughout the yard. Water: Yes. Not available in all areas of the yard. Crane: 60 ton
Site Contacts:	Responsible party or alternate contact: Bellingham WA. Oiled Boat Moorage, W 360 715-1000, M 360 303 2417, H 360 961 8746

Closest Address:**Strategy Sites Served:**

NPS-Bell.(Marine)

Driving Directions:

Cannot Drive to Site

Lat/Long:	N 48° 59.500' / W 122° 45.750', Sector Map NPS-2
Staging Description:	Access: From I-5 take exit 276. Turn West onto D Street. Turn West onto Marine Drive. Follow Marine Drive to the Harbor Café and turn left. They are located behind the Harbor Café at the end of McMillan Street. Dock: Wood pier with floats attached. Misc. Equipment: 250-ton railway, 30-ton travel lift, fork lift, mobile crane.
Site Contacts:	Responsible party or alternate contact: Blaine Staging Area - Westman Marine, W 360 332-5051, H 360 332 4308

Closest Address:**Strategy Sites Served:**

NPS-Blaine(Marine)

Driving Directions:

Cannot Drive to Site

Lat/Long:	N 48° 45.050' / W 122° 29.250', Sector Map NPS-6
Staging Description:	Dock: Concrete/Steel 176 ft working face. Water depth 10 ft. at MLLW. Boat ramp: N/A. Vessels up to 60,000 lbs can be launched by crane on a two-strap lift. Misc. Equipment: 3 forklifts & 1 earth mover, 60,000 lb SWL mobile crane.
Site Contacts:	Responsible party or alternate contact: Bellingham Staging Area - Boat Yard at Colony Wharf, W 360 715-1000

Closest Address:**Strategy Sites Served:**

NPS-Colony(Marine)

Driving Directions:

Cannot Drive to Site

Lat/Long:	N 48° 31.316' / W 122° 36.883', Sector Map NPS-8
Staging Description:	Access: From Interstate 5, take exit 230 and proceed west on SR-20 to Anacortes. Turn right on R Ave (R Avenue becomes "Q" Avenue). Turn left on 3rd Avenue. Turn right on Commercial Avenue. Turn left on 2nd avenue. The entrance gate to Curtis Wharf is located on 2nd Ave. past "Q" Street. Dock: Concrete pier 320 ft. (104.9m) - including dolphins : 480 ft., 26 ft. (8.5 m) MLLW Dock Load Limit: 1200 lbs./sq.ft.
Site Contacts:	Responsible party or alternate contact: Anacortes Staging Area - Curtis Wharf, Port of Anacortes, W 360-299-1829, M 360-661-1672, H 360-588-1879

Closest Address:**Strategy Sites Served:**

NPS-Curtis(Marine)

Driving Directions:

Cannot Drive to Site

Lat/Long:	N 48° 31.316' / W 122° 36.667', Sector Map NPS-8
Staging Description:	Dock: 650-foot concrete dock with 30-foot water depth plus two additional 150-foot and 120-foot outfitting docks. Misc. Equipment: 5,000 ton Syncrolift Shiplift, 10,000 ton drydock, Multiple mobile cranes to 175 tons.
Site Contacts:	Responsible party or alternate contact: Anacortes Staging Area - Dakota Creek Industries, H 360-293-9575

Closest Address:**Strategy Sites Served:**

NPS-DC Ind(Marine)

Driving Directions:

Cannot Drive to Site

Lat/Long:	N 48° 44.700' / W 122° 30.883', Sector Map NPS-6
Staging Description:	Access: From I-5 take exit 250 and proceed West on Old Fairhaven Parkway. Turn right on 12th Avenue. Turn Left on Harris Avenue. Harris Avenue dead ends at the entrance gate to the shipyard. Dock: 1600 ft. of pier space, 60 ft. at MLLW Dock Load Limit: 90,000 lbs Misc. Equipment: 70 ton floating, 30 & 15 ton mobile cranes, 32,000 ton drydock
Site Contacts:	Responsible party or alternate contact: Bellingham Staging Area - Fairhaven Shipyard, W 360 647-0080, M 360 920-1397

Closest Address:**Strategy Sites Served:**

NPS-FH SY(Marine)

Driving Directions:

Cannot Drive to Site

Lat/Long:	N 48° 30.400' / W 122° 36.383', Sector Map NPS-8
Staging Description:	Access: From Interstate 5, take exit 230 and proceed west on SR-20 to Anacortes. Turn right on R Ave. Turn Right on 22 St. The entrance is the first gate on the left after turning onto 22 Street. There is no street address as the property is undeveloped. Dock: Concrete/Steel 100' working face. Water depth 4 ft. at MLLW. Height of dock 16' above MLLW.
Site Contacts:	Responsible party or alternate contact: Anacortes Staging Area - MJB Properties, H 360 293-5519

Closest Address:**Strategy Sites Served:**

NPS-MJB(Marine)

Driving Directions:

Cannot Drive to Site

5. Shoreline Information

5.1. Shoreline Types and Sensitivity

The type of shoreline, degree of exposure to waves and currents, and biological sensitivity are the main criteria for selecting appropriate treatment techniques. Each shoreline type has particular properties (including vegetation types) which facilitate or resist the penetration and persistence of oil. Areas of comparatively uniform sediment type and grain size experience a deeper penetration of oil. Grain size definitions are:











Mud	<0.0625 mm
Fine Sand	0.0625 - 2 mm
Medium to Coarse Sand	2 - 4 mm
Pebble/Cobble	4 - 256 mm

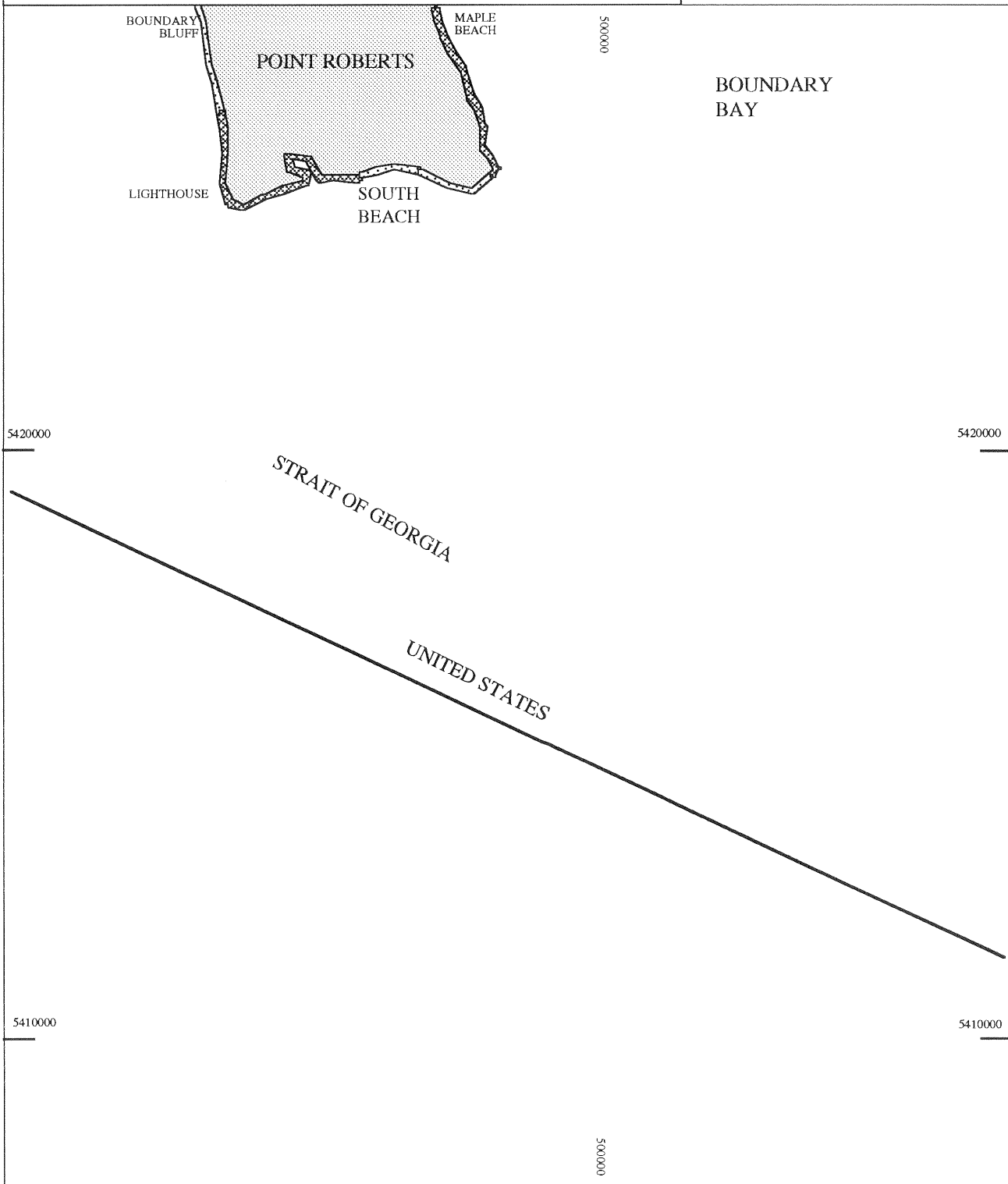
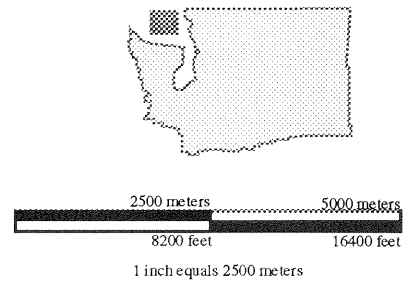
Persistence of oil in a particular area is directly related to the intensity of wave action, tides, and currents. Based on numerous oil spill studies of shoreline characteristics, treatment, and oil impact, the matrices in Chapter 5 were formulated following the basic prototype of the Environmental Sensitivity Index Atlas.

The environmental sensitivity index (ESI) system ranks coastal environments on a scale of 1-10 or 11 (less sensitive to more sensitive) with respect to oil spill sensitivity and potential biological injury. ESI is being used for mapping extensive areas of the coastline of the U.S. Generally speaking, areas exposed to high levels of physical energy, such as wave action and tidal currents, rank low on the scale while sheltered areas have the highest ranking. The shoreline types used in this manual are a combination of the two similar systems used for the Delaware/Pennsylvania/New Jersey ESI Atlas, and the Maryland and Virginia atlases. The numbering system for the Countermeasure Manual Shoreline Types does not correspond exactly to either atlas; however, the corresponding shoreline types can be identified easily from the ESI maps and reassigned the appropriate number (after field verification.) The shoreline ranking system provides a useful first step in the design of contingency plans because it identifies the priority areas that require maximum effort for protection and cleanup. Strike teams and contractors with this document can focus their activities on environmental priorities, particularly during the first few hours and days of the spill.¹³











¹³ Regional Response Team III. Draft, *Shoreline Countermeasures Manual*. (Department of the Interior, March 22, 1991).

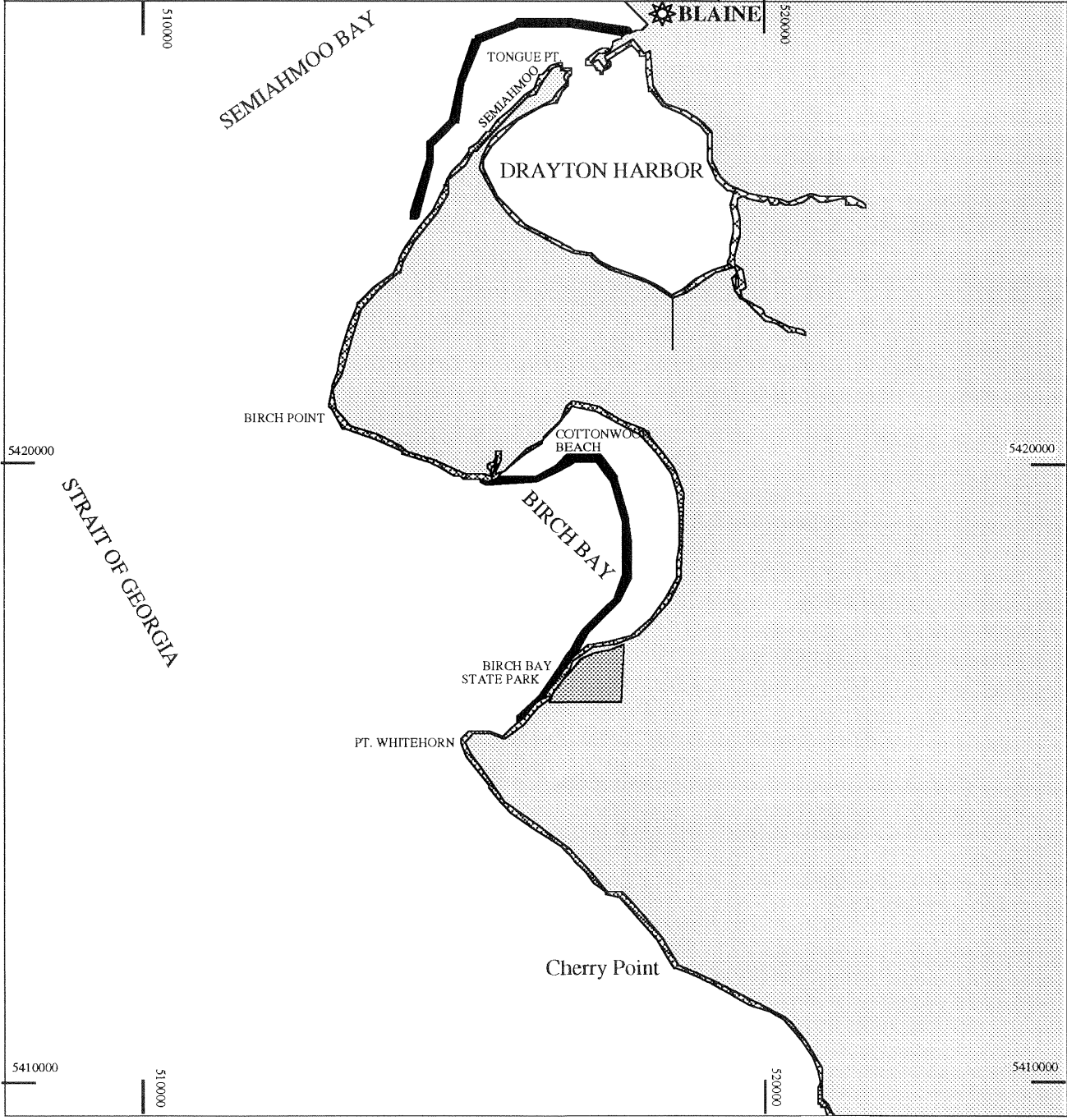
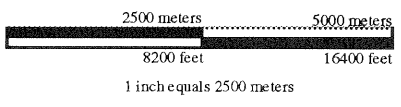
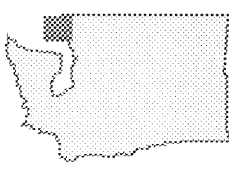
POINT ROBERTS SHORELINE TYPES

	EXPOSED ROCKY SHORE (OR SEAWALL)		GRAVEL/COBBLE/RIPRAP BEACH
	WAVE-CUT PLATFORM		EXPOSED TIDAL FLAT
	FINE GRAINED BEACH		SHELTERED ROCKY FLAT
	COARSE GRAINED BEACH		SHELTERED TIDAL FLAT
	SAND/GRAVEL BEACH		MARSH



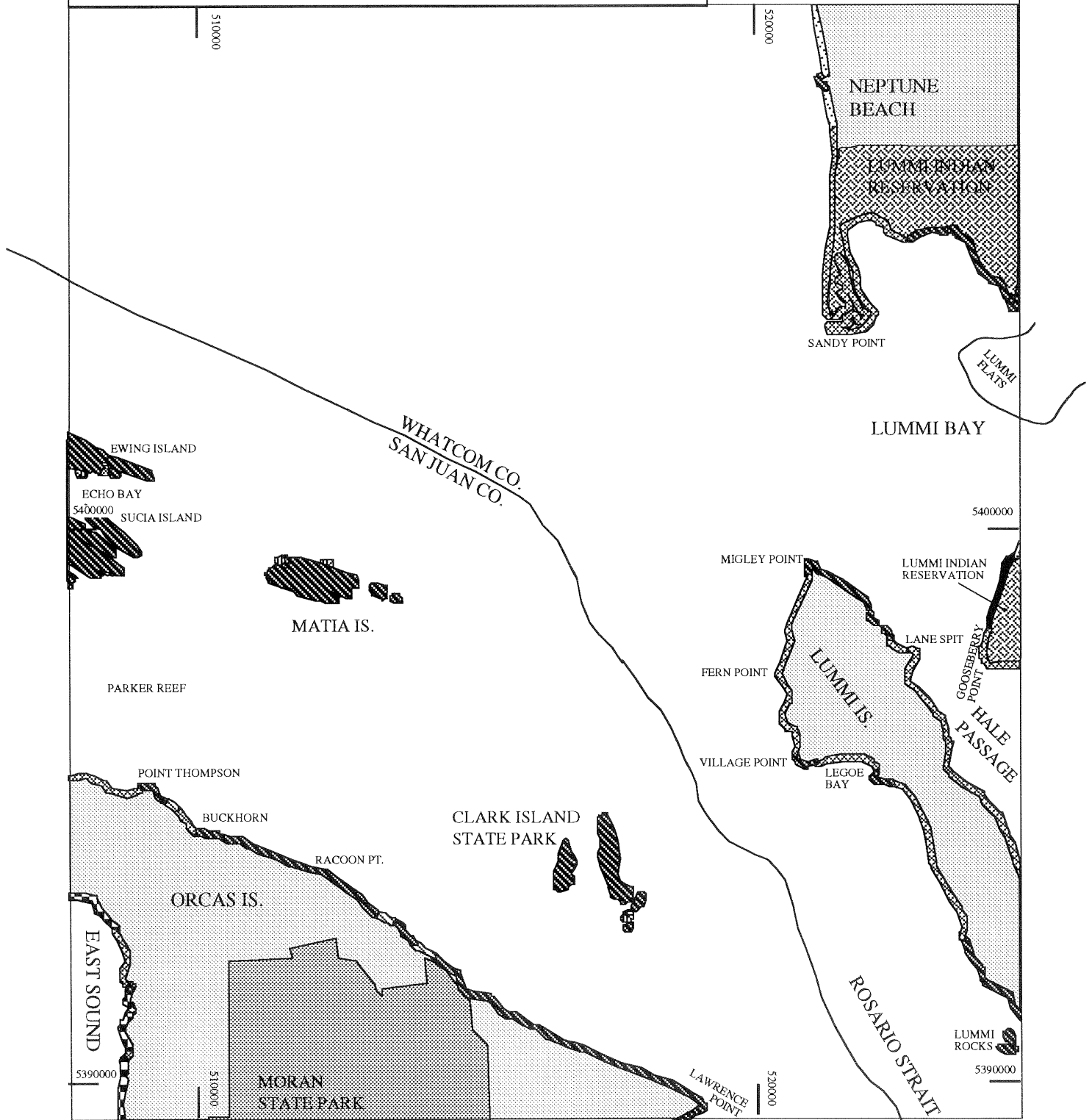
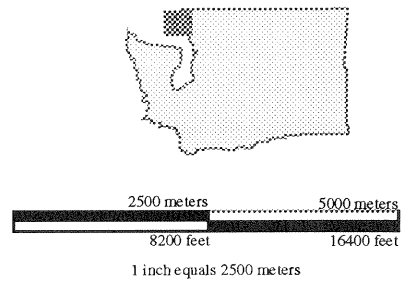
**BLAINE
SHORELINE TYPES**

	EXPOSED ROCKY SHORE (OR SEAWALL)		GRAVEL/COBBLE/RIPRAP BEACH
	WAVE-CUT PLATFORM		EXPOSED TIDAL FLAT
	FINE GRAINED BEACH		SHELTERED ROCKY FLAT
	COARSE GRAINED BEACH		SHELTERED TIDAL FLAT
	SAND/GRAVEL BEACH		MARSH













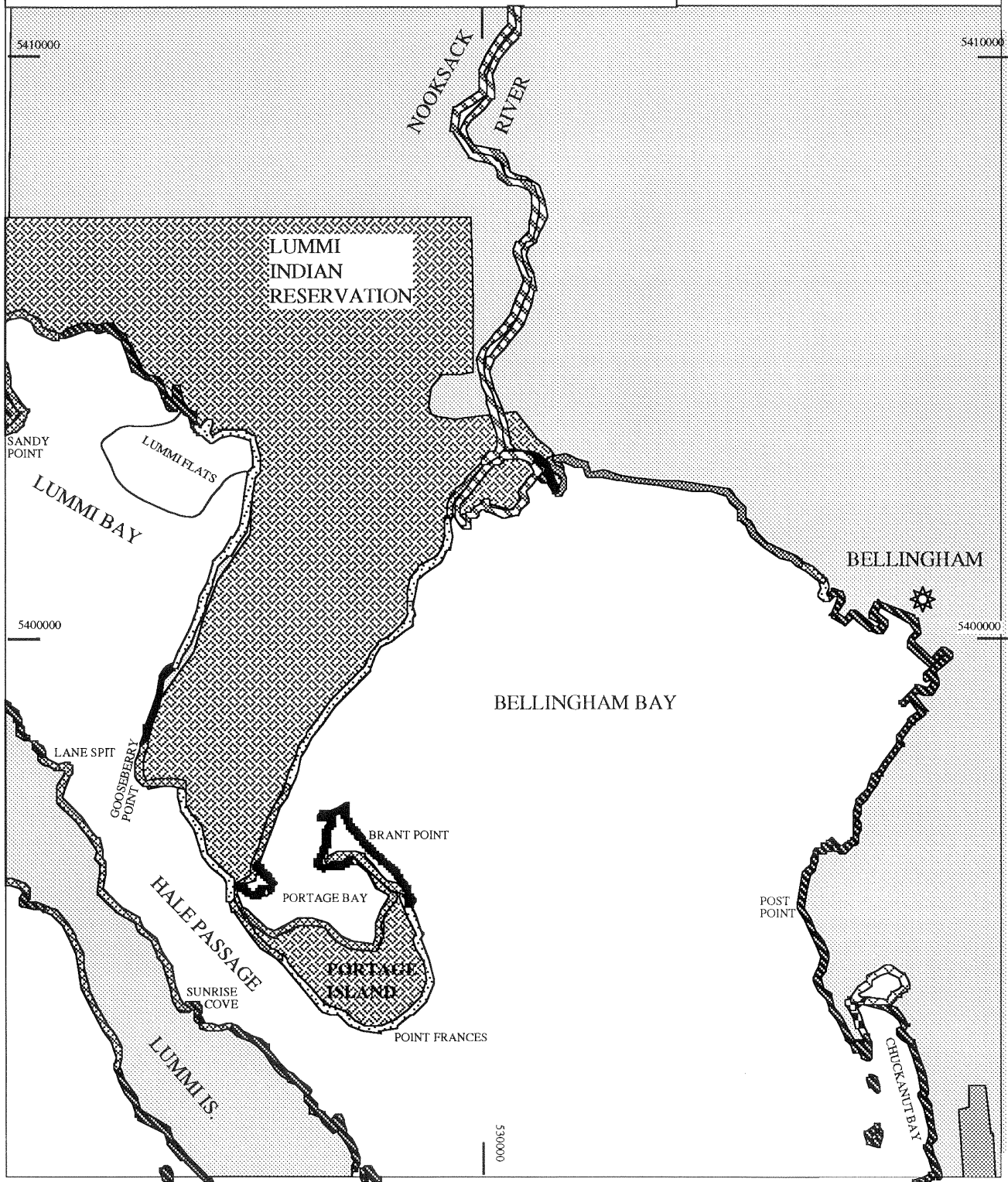
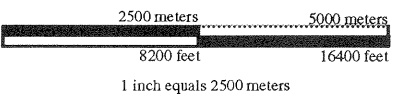
MATIA ISLAND SHORELINE TYPES

	EXPOSED ROCKY SHORE (OR SEAWALL)		GRAVEL/COBBLE/RIPRAP BEACH
	WAVE-CUT PLATFORM		EXPOSED TIDAL FLAT
	FINE GRAINED BEACH		SHELTERED ROCKY FLAT
	COARSE GRAINED BEACH		SHELTERED TIDAL FLAT
	SANDY/GRAVEL BEACH		MARSH













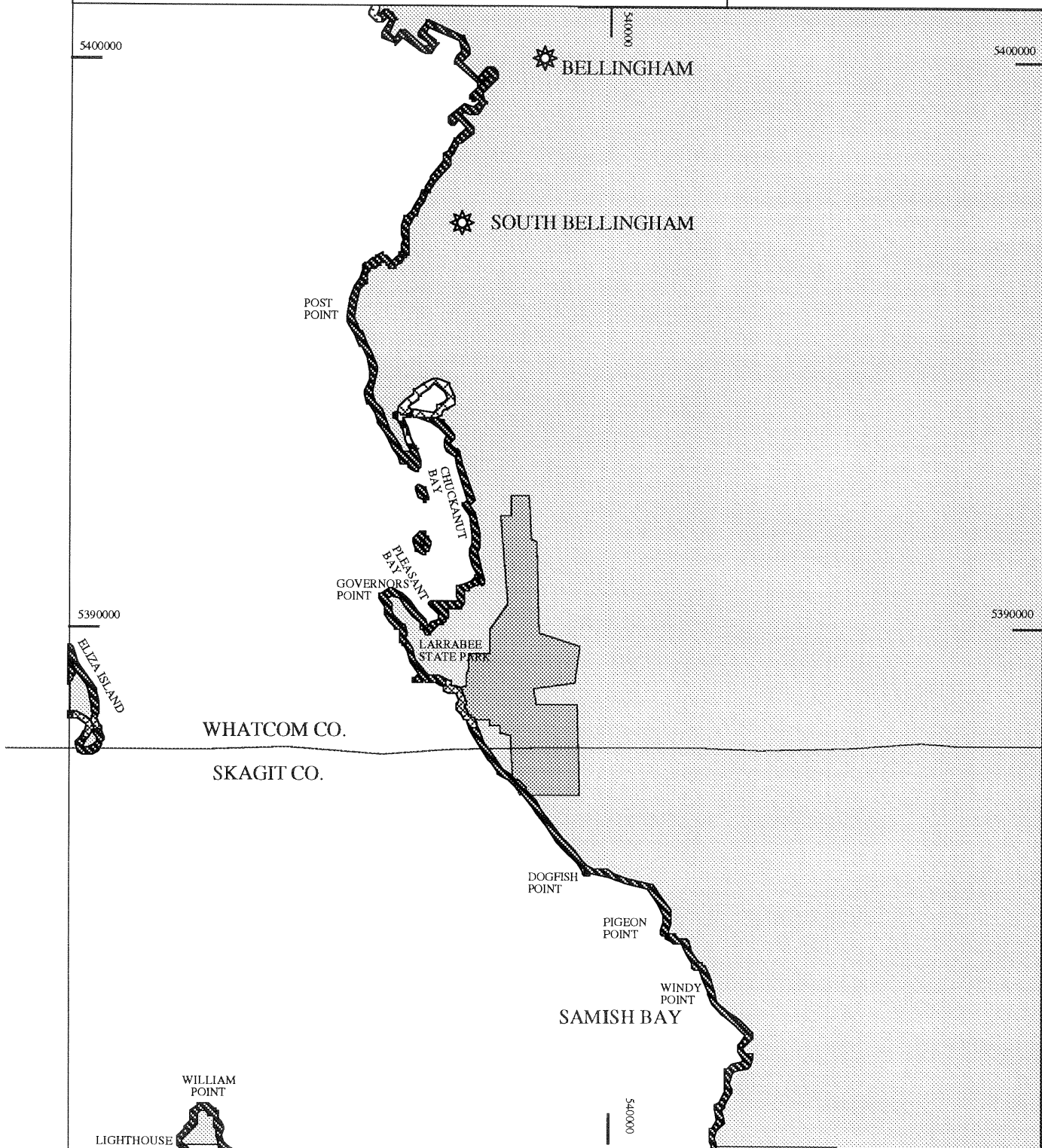
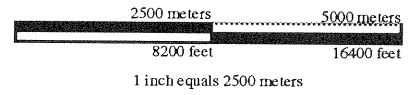
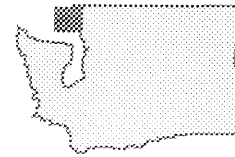
BELLINGHAM
SHORELINE TYPES

	EXPOSED ROCKY SHORE (OR SEAWALL)		GRAVEL/COBBLE/RIPRAP BEACH
	WAVE-CUT PLATFORM		EXPOSED TIDAL FLAT
	FINE GRAINED BEACH		SHELTERED ROCKY FLAT
	COARSE GRAINED BEACH		SHELTERED TIDAL FLAT
	SAND/GRAVEL BEACH		MARSH



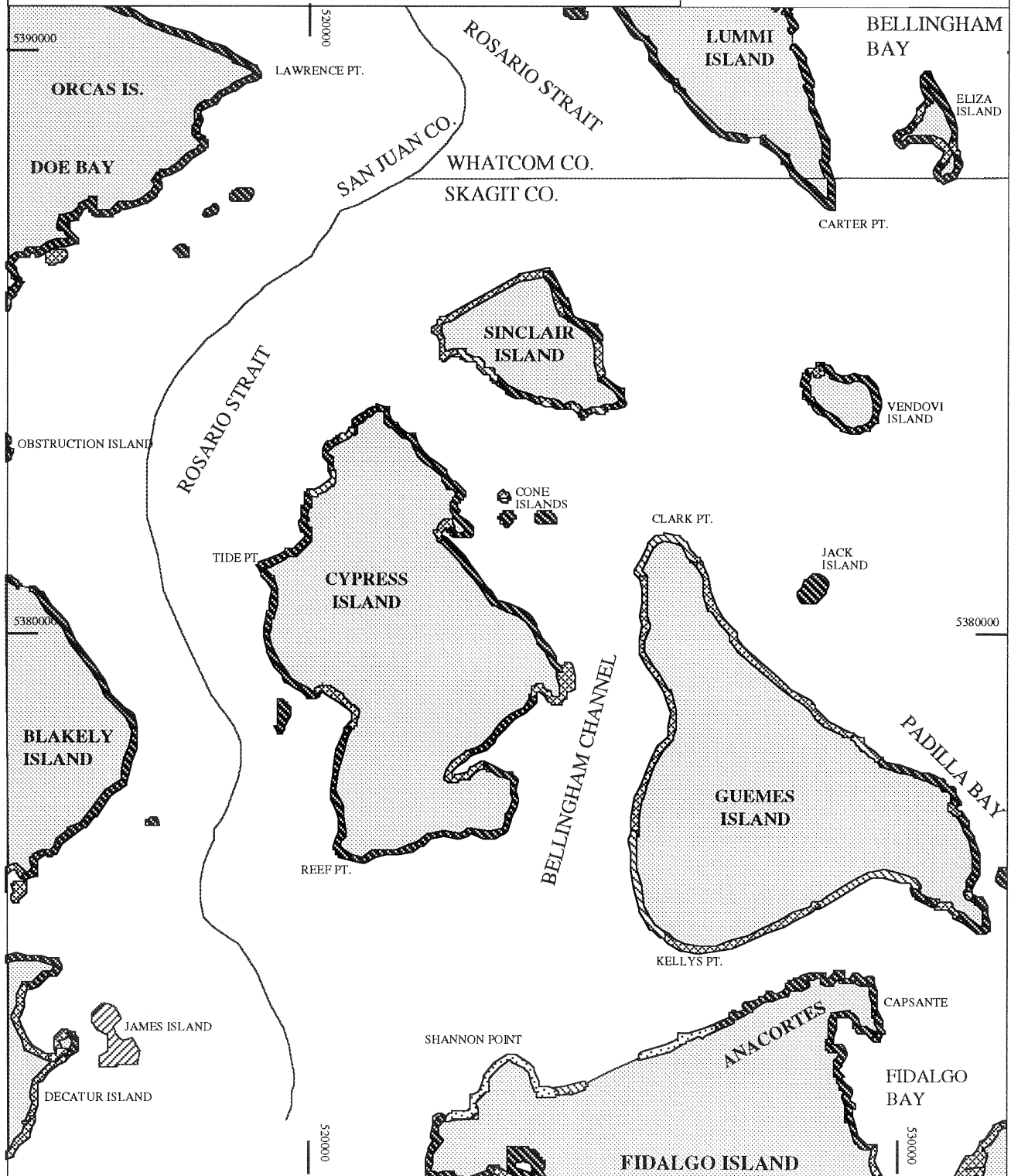
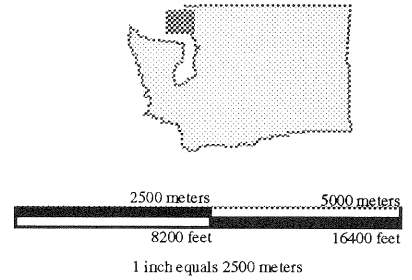
SOUTH BELLINGHAM SHORELINE TYPES

	EXPOSED ROCKY SHORE (OR SEAWALL)		GRAVEL/COBBLE/RIPRAP BEACH
	WAVE-CUT PLATFORM		EXPOSED TIDAL FLAT
	FINE GRAINED BEACH		SHELTERED ROCKY FLAT
	COARSE GRAINED BEACH		SHELTERED TIDAL FLAT
	SAND/GRAVEL BEACH		MARSH













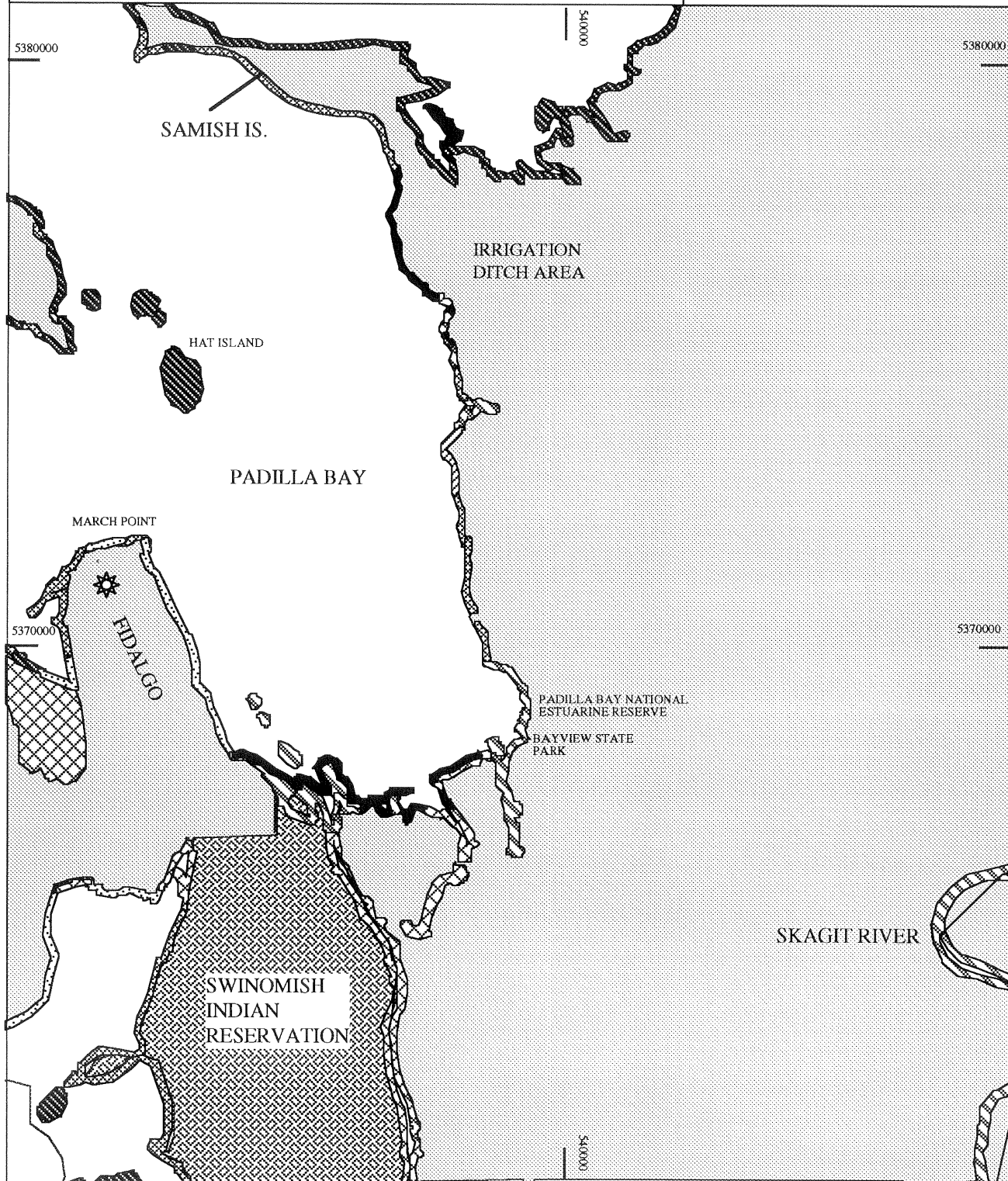
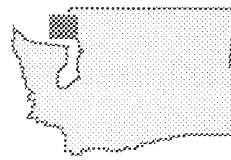
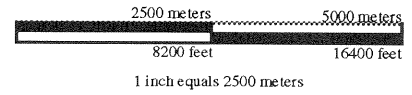
ROSARIO STRAIT SHORELINE TYPES

	EXPOSED ROCKY SHORE (OR SEAWALL)		GRAVEL/COBBLE/RIPRAP BEACH
	WAVE-CUT PLATFORM		EXPOSED TIDAL FLAT
	FINE GRAINED BEACH		SHELTERED ROCKY FLAT
	COARSE GRAINED BEACH		SHELTERED TIDAL FLAT
	SANDY/GRAVEL BEACH		MARSH













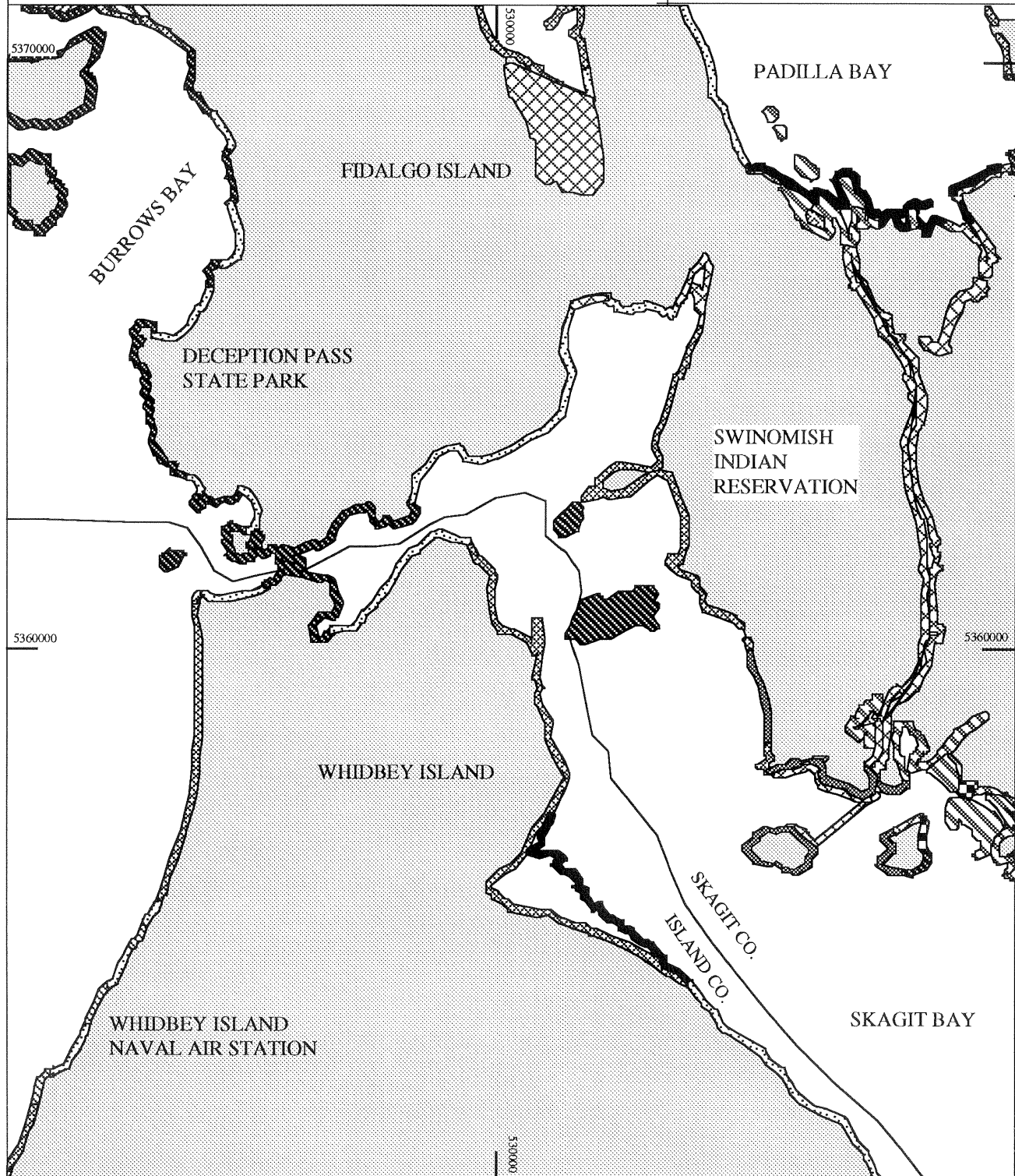
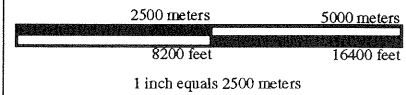
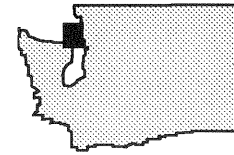
PADILLA BAY SHORELINE TYPES

	EXPOSED ROCKY SHORE (OR SEAWALL)		GRAVEL/COBBLE/RIPRAP BEACH
	WAVE-CUT PLATFORM		EXPOSED TIDAL FLAT
	FINE GRAINED BEACH		SHELTERED ROCKY FLAT
	COARSE GRAINED BEACH		SHELTERED TIDAL FLAT
	SAND/GRAVEL BEACH		MARSH

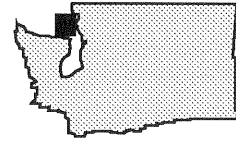


DECEPTION PASS SHORELINE TYPES

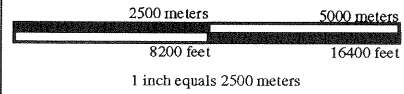
	EXPOSED ROCKY SHORE (OR SEAWALL)		GRAVEL/COBBLE/RIPRAP BEACH
	WAVE-CUT PLATFORM		EXPOSED TIDAL FLAT
	FINE GRAINED BEACH		SHELTERED ROCKY FLAT
	COARSE GRAINED BEACH		SHELTERED TIDAL FLAT
	SAND/GRAVEL BEACH		MARSH



SOUTH LOPEZ ISLAND SHORELINE TYPES

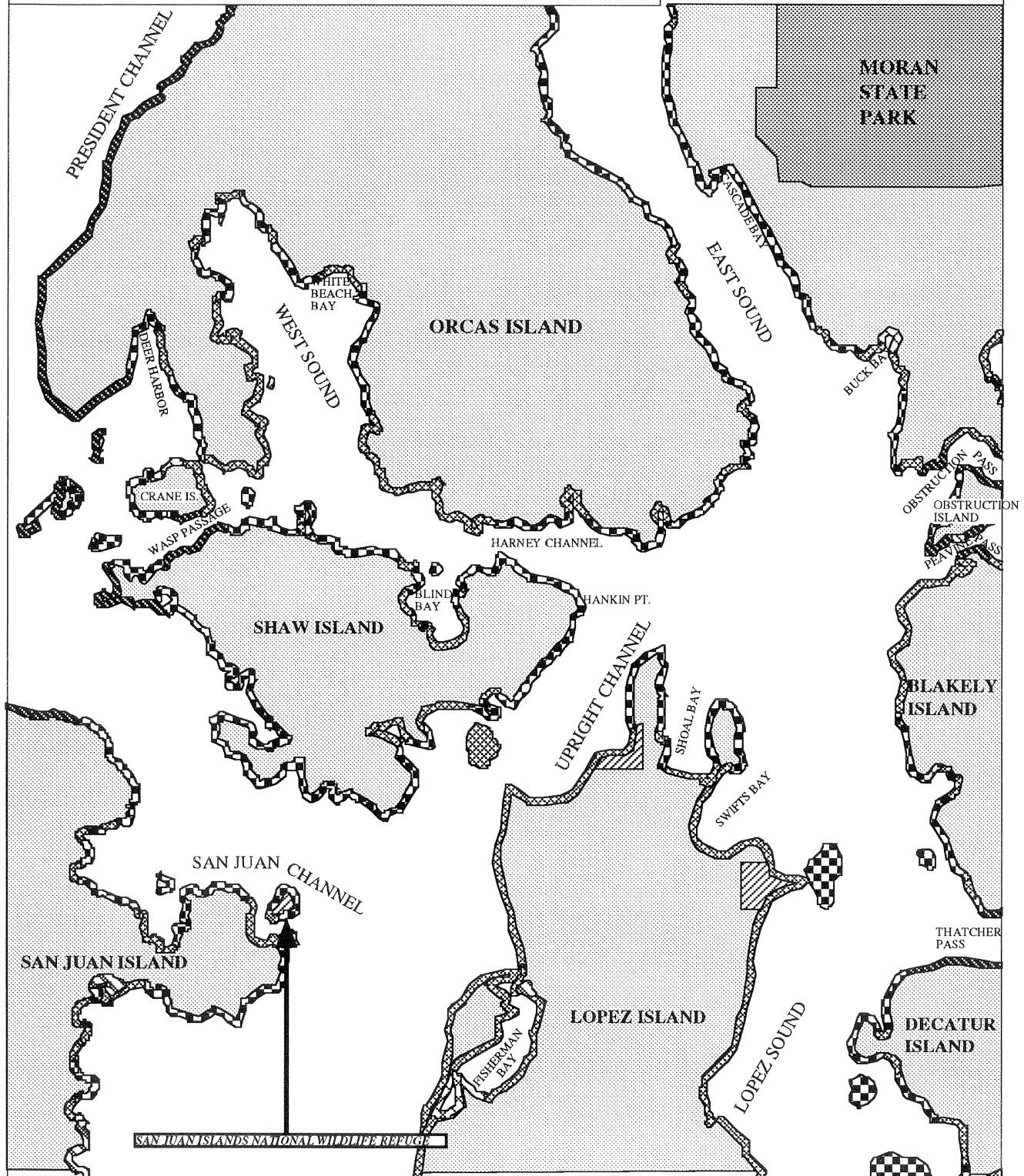
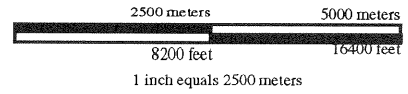
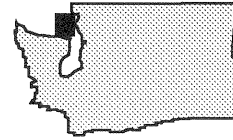


	EXPOSED ROCKY SHORE (OR SEAWALL)		GRAVEL/COBBLE/RIPRAP BEACH
	WAVE-CUT PLATFORM		EXPOSED TIDAL FLAT
	FINE GRAINED BEACH		SHELTERED ROCKY FLAT
	COARSE GRAINED BEACH		SHELTERED TIDAL FLAT
	SAND/GRAVEL BEACH		MARSH













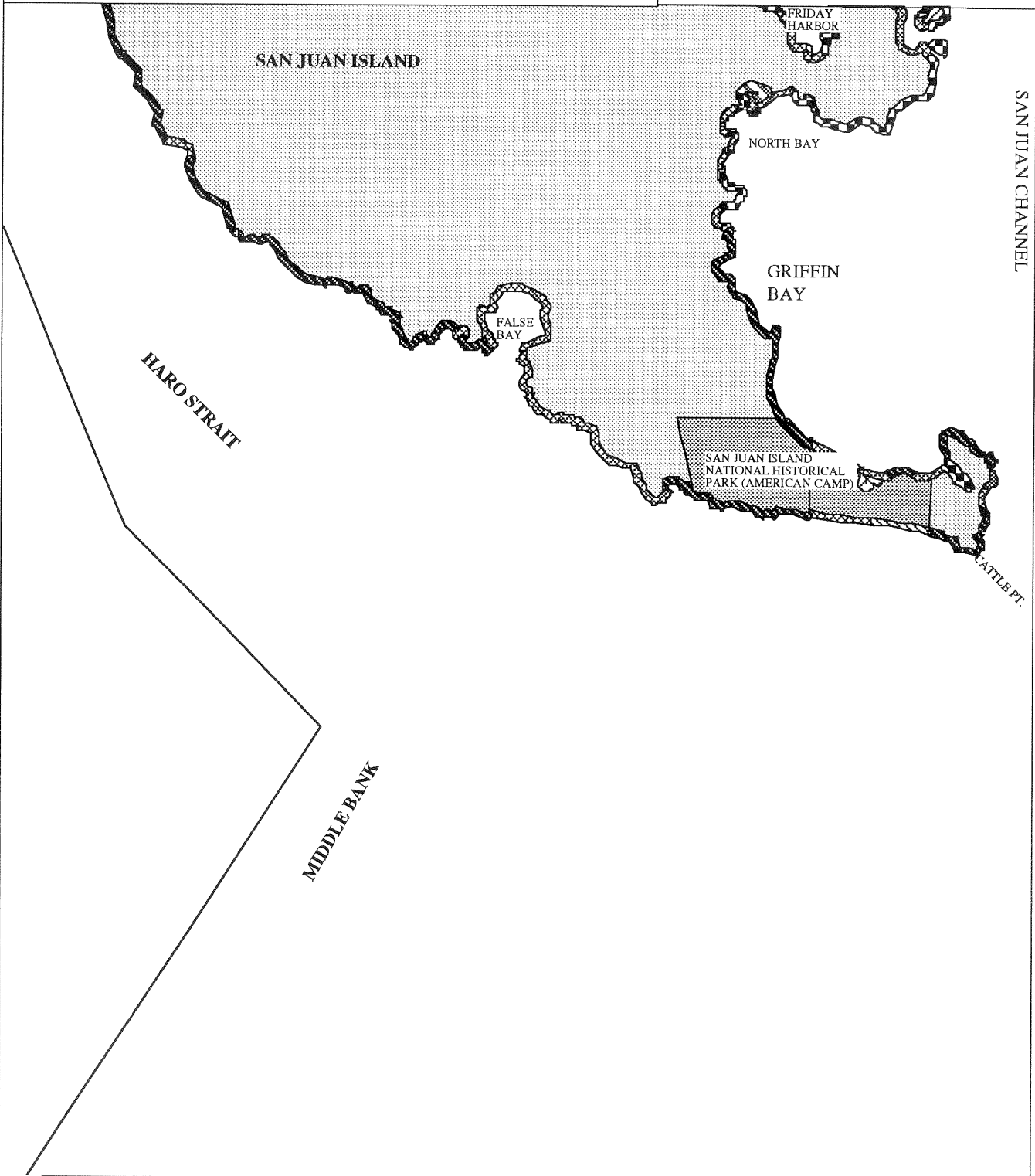
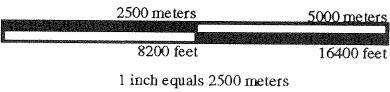
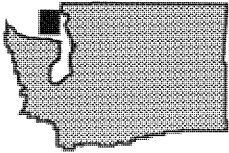
SOUTH ORCAS ISLAND SHORELINE TYPES

	EXPOSED ROCKY SHORE (OR SEAWALL)		GRAVEL/COBBLE/RIPRAP BEACH
	WAVE-CUT PLATFORM		EXPOSED TIDAL FLAT
	FINE GRAINED BEACH		SHELTERED ROCKY FLAT
	COARSE GRAINED BEACH		SHELTERED TIDAL FLAT
	SAND/GRAVEL BEACH		MARSH













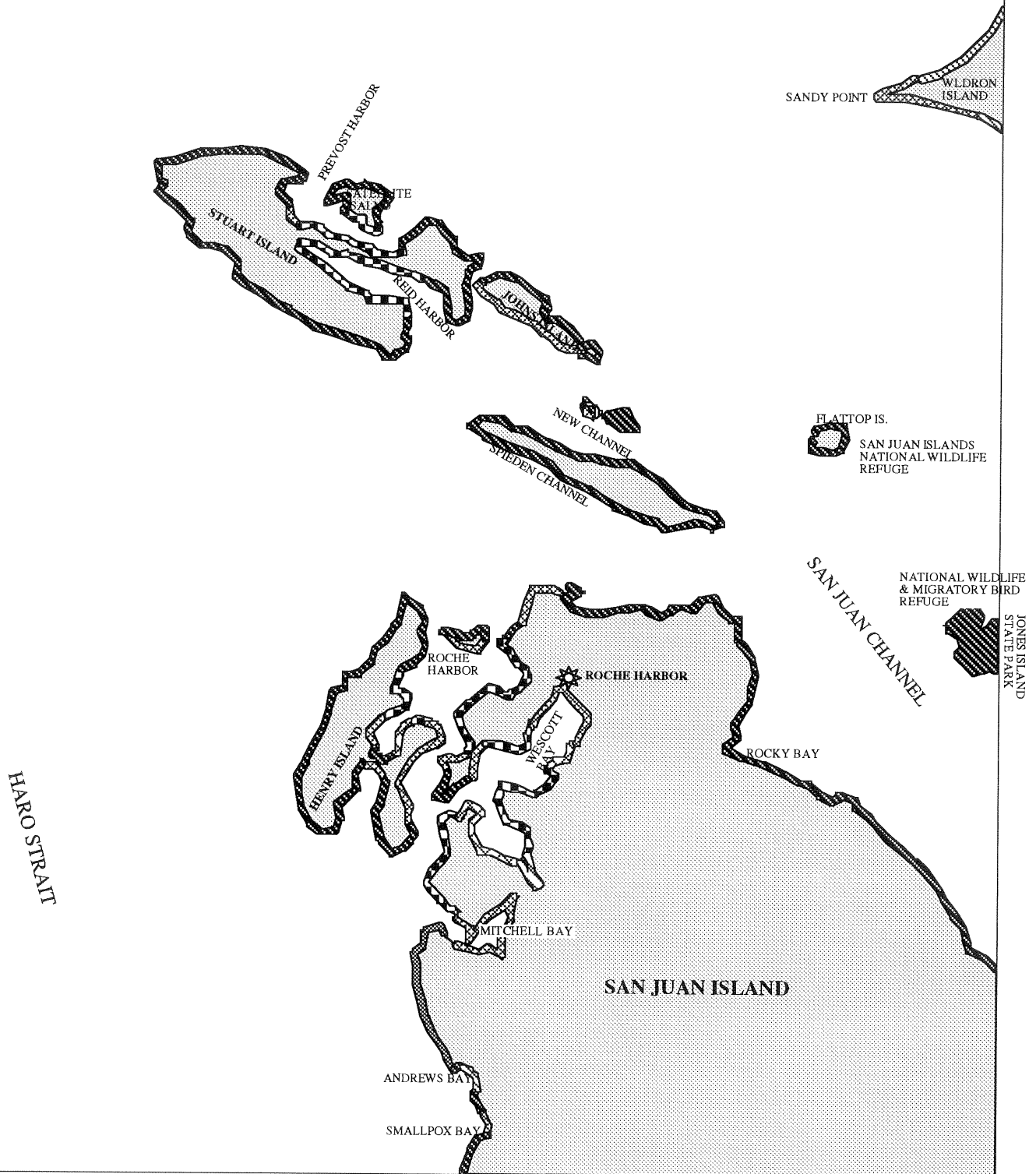
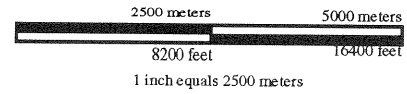
**SOUTH SAN JUAN ISLAND
SHORELINE TYPES**

	EXPOSED ROCKY SHORE (OR SEAWALL)		GRAVEL/COBBLE/RIPRAP BEACH
	WAVE-CUT PLATFORM		EXPOSED TIDAL FLAT
	FINE GRAINED BEACH		SHELTERED ROCKY FLAT
	COARSE GRAINED BEACH		SHELTERED TIDAL FLAT
	SAND/GRAVEL BEACH		MARSH













NORTH SAN JUAN ISLAND SHORELINE TYPES

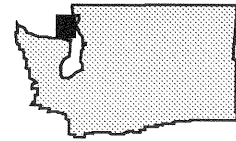
	EXPOSED ROCKY SHORE (OR SEAWALL)		GRAVEL/COBBLE/RIPRAP BEACH
	WAVE-CUT PLATFORM		EXPOSED TIDAL FLAT
	FINE GRAINED BEACH		SHELTERED ROCKY FLAT
	COARSE GRAINED BEACH		SHELTERED TIDAL FLAT
	SAND/GRAVEL BEACH		MARSH



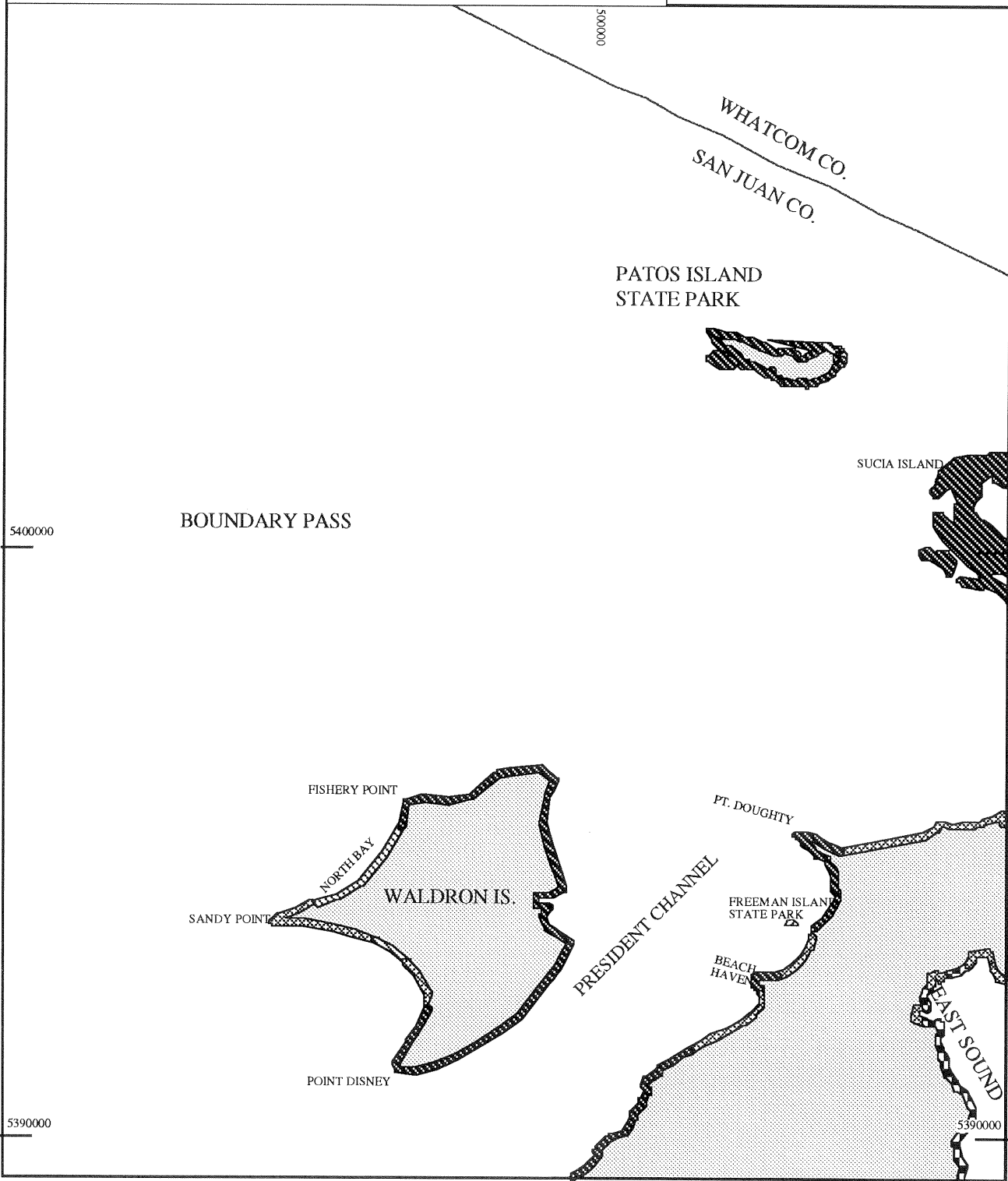
WALDRON ISLAND SHORELINE TYPES

-  EXPOSED ROCKY SHORE (OR SEAWALL)
-  WAVE-CUT PLATFORM
-  FINE GRAINED BEACH
-  COARSE GRAINED BEACH
-  SAND/GRAVEL BEACH

-  GRAVEL/COBBLE/RIPRAP BEACH
-  EXPOSED TIDAL FLAT
-  SHELTERED ROCKY FLAT
-  SHELTERED TIDAL FLAT
-  MARSH



2500 meters 5000 meters
8200 feet 16400 feet
1 inch equals 2500 meters




5.3 Shoreline Countermeasure Matrices

The matrices included here show which shoreline countermeasure techniques have been considered for the fourteen shoreline types described in Chapter 2 of the “Shoreline Countermeasures Manual & Matrices”, Northwest Area Plan, Chapter 9650, Page 9-37. Four matrices have been constructed for the major categories of oil (heavy, medium, light, very light).

Countermeasure methods are described in Chapters 3 and 4 of the manual. Countermeasures in Chapter 3 are traditional or conventional techniques that the OSC can use without any additional concurrence. However, the cutting of vegetation countermeasure should be used only during specific seasonal windows under specific conditions and with landowner approval. Countermeasures in Chapter 4 are described under a separate section called “Shoreline Countermeasure Methods Using Alternative Technology” may be useful in certain situations. These methods are considered more experimental and controversial in their application and potential impacts and require more formal review and consultation before implementing. The exact requirements are spelled out in the National Contingency Plan and the Northwest Area Plan. The Shoreline Countermeasures Matrices are a particularly dynamic component of the manual and should continue to be revised as the existing techniques are used and evaluated, and as both old and new techniques are refined.

Each matrix has a written explanation of how it is to be used as a countermeasure advisability matrix. The matrices are only a general guide for removing oil from shoreline substrates. They must be used in conjunction with the entire “Shoreline Countermeasures Manual” plus field observations and scientific advice. The countermeasures listed are not necessarily the best under all circumstances, and any listed technique may need to be used in conjunction with other techniques (including ones not listed herein). The Federal On-Scene Coordinator (FOSC) or the State OSC operating with the FOSC's authorization has the responsibility for and authority to determine which countermeasure(s) are appropriate for the various situations encountered.

Selection of countermeasure techniques to be used in each spill is based upon the degree of oil contamination, shoreline types, and the presence of sensitive resources. Extremely sensitive areas are generally limited to manual cleanup methods. It is important to note that the primary goal of countermeasure implementation is the removal of oil from the shoreline with no further injury or destruction to the environment. The three categories of guidance used in the matrices are defined as follows:

R	Recommended	May be the preferred method that best achieves the goal of minimizing destruction or injury to the environment
C	Conditional	Viable and possibly useful but may result in limited adverse effects to the environment
	Shaded	Not applicable or not generally recommended.

SHORELINE COUNTERMEASURES MATRIX

Heavy Oil (Heavy Crude Oils, Intermediate Fuel Oils, Bunker C & Heavily Weathered Medium Crudes)

- Heavy oils with little or no evaporation or dissolution
- Water-soluble fraction likely to be <10ppm
- Heavy contamination of intertidal areas likely
- Severe impacts to waterfowl and fur-bearing mammals (coating and ingestion)
- Long-term contamination to sediments possible
- Weathers very slowly
- Dispersion seldom effective
- Shoreline cleanup difficult under all conditions

SHORELINE TYPES CODES

1 - Exposed rock shores and vertical, hard man-made structure (e.g. seawalls)	6B - Gravel beaches - cobbles to boulders
2 - Exposed wave-cut platforms	6C - Exposed rip rap
3 - Fine to medium grained sand beaches & steep unvegetated river banks	7 - Exposed tidal flat
4 - Course grained sand beaches	8A- Sheltered vertical rock shores and vertical, hard man-made structures (e.g. seawalls, docks, bulkheads)
5 - Mixed sand and gravel beaches, including artificial fill containing a range of grain size and material	8B - Sheltered rubble slope
6A - Gravel beaches - pebbles to cobble	9A - Sheltered sand and mud flats
	9B - Sheltered vegetated low bank
	10 - Marshes

SHORELINE TYPES

COUNTERMEASURES	1	2	3	4	5	6A	6B	6C	7	8A	8B	9A	9B	10
CONVENTIONAL METHODS														
No action	C	C	C	C	C	C	C	C	R	C	C	R	C	R
Manual removal of oil	C	R	R	R	R	C	C	C		R	R		C	C
Passive collection of oil	R	R	R	R	R	R	R	R	C	R	R	C	R	R
Oiled debris removal	C	R	R	R	R	R	R	R	C	R	R	C	R	C
Trenching/recovery wells			C	C	C									
Oiled sediment removal			C	C	C	C		C					C	
Ambient water flooding (Deluge)			C	C	C	R	R	R		R	R		C	C
Amb water flush <50 psi	C	C			C	R	C	R		C	C		C	C
Amb water flush <100 psi	C	C					C	C		C	C			
Warm water flush <90°F	C						C	C		C				
Hot water flush >90°F	C									C				
Vacuum removal of oil	C	C	C	C	C	C	C	C		C	C		C	C
Sediment reworking			C	C	C	C								
Sediment Removal-cleaning-replacement			C	C	C	C		C						
Cutting oiled vegetation							C	C		C	C		C	C
ALTERNATIVE METHODS*														
In-situ burning on shore														
Chemical stabilization, protection, cleaning														
Nutrient enhancement			C	C	C	C	C	C						C
Microbial addition														

R Recommend - May be Preferred Alternative

C Conditional (Refer to NW Shoreline Countermeasures Manual)

Shaded areas are Not Applicable or Not Generally Recommended

* Follow approved process defined in NCP and NW Area Plan

This countermeasure advisability matrix is only a general guide for removal of oil from shoreline substrates. It must be used in conjunction with the entire Shoreline Countermeasures Manual plus field observations and scientific advice. The countermeasures listed are not necessarily the best under all circumstances, and any listed technique may need to be used in conjunction with other techniques (including ones not listed herein). The Federal On-Scene Coordinator (FOSC) or the state OSC operating with the FOSC's authorization has the responsibility for and the authority to determine which countermeasure(s) are appropriate for various situations encountered. Selection of countermeasures is based on the degree of oil contamination, the shoreline type, and the presence of sensitive resources.

SHORELINE COUNTERMEASURES MATRIX

Medium Oil (Most Crude Oils & Some Heavily Weathered Light Crudes)

- About 1/3 will evaporate within 24 hours
- Maximum water-soluble fraction is 10-100ppm
- Oil contamination of intertidal areas can be severe and long-term
- Impact to waterfowl and fur-bearing mammals can be severe
- Chemical dispersion is an option within 1-2 days
- Cleanup most effective if conducted quickly

SHORELINE TYPES CODES

1 - Exposed rock shores and vertical, hard man-made structure (e.g. seawalls)	6B - Gravel beaches - cobbles to boulders
2 - Exposed wave-cut platforms	6C - Exposed rip rap
3 - Fine to medium grained sand beaches & steep unvegetated river banks	7 - Exposed tidal flat
4 - Course grained sand beaches	8A - Sheltered vertical rock shores and vertical, hard man-made structures (e.g. seawalls, docks, bulkheads)
5 - Mixed sand and gravel beaches, including artificial fill containing a range of grain size and material	8B - Sheltered rubble slope
6A - Gravel beaches - pebbles to cobble	9A - Sheltered sand and mud flats
	9B - Sheltered vegetated low bank
	10 - Marshes

SHORELINE TYPES

COUNTERMEASURES	1	2	3	4	5	6A	6B	6C	7	8A	8B	9A	9B	10
CONVENTIONAL METHODS														
No action	C	C	C	C	C	C	C	C	R	C	C	R	C	R
Manual removal of oil	C	R	R	R	R	C	C	C		R	R		C	C
Passive collection of oil	R	R	R	R	R	R	R	R	C	R	R	R	R	R
Oiled debris removal	C	R	R	R	R	R	R	R	C	R	R	C	R	C
Trenching/recovery wells			C	C	C									
Oiled sediment removal			C	C	C	C							C	
Ambient water flooding (Deluge)			C	C	C	R	R	R		R	R		C	C
Amb water flush <50 psi	C	C			C	R	C	R		R	R		C	C
Amb water flush <100 psi	C	C					C	C		C				
Warm water flush <90°F	C						C	C		C				
Hot water flush >90°F	C									C				
Vacuum removal of oil	C	C	R	R		C	R	R		C	C		C	C
Sediment reworking			C	C	C	C								
Sediment Removal-cleaning-replacement			C	C	C	C		C			C			
Cutting oiled vegetation							C	C		C	C		C	C
ALTERNATIVE METHODS*														
In-situ burning on shore														
Chemical stabilization, protection, cleaning														
Nutrient enhancement			C	C	C	C	C	C			C			C
Microbial addition														

R Recommend - May be Preferred Alternative

C Conditional (Refer to NW Shoreline Countermeasures Manual)

Shaded areas are Not Applicable or Not Generally Recommended

* Follow approved process defined in NCP and NW Area Plan

This countermeasure advisability matrix is only a general guide for removal of oil from shoreline substrates. It must be used in conjunction with the entire Shoreline Countermeasures Manual plus field observations and scientific advice. The countermeasures listed are not necessarily the best under all circumstances, and any listed technique may need to be used in conjunction with other techniques (including ones not listed herein). The Federal On-Scene Coordinator (FOSC) or the state OSC operating with the FOSC's authorization has the responsibility for and the authority to determine which countermeasure(s) are appropriate for various situations encountered. Selection of countermeasures is based on the degree of oil contamination, the shoreline type, and the presence of sensitive resources.

SHORELINE COUNTERMEASURES MATRIX

Light Oil (Diesel, No 2 Fuel Oils, Light Crudes)

- Moderately volatile; will leave residue (up to 1/3 of spilled amount)
- Moderate concentrations of toxic (soluble) compounds
- Long-term contamination of intertidal resources possible
- Potential for subtidal impacts (dissolution, mixing, sorption onto suspended sediments)
- No dispersion necessary
- Cleanup can be very effective

SHORELINE TYPES CODES


1- Exposed rock shores and vertical, hard man-made structure (e.g. seawalls)	6B - Gravel beaches - cobbles to boulders
2 - Exposed wave-cut platforms	6C - Exposed rip rap
3 - Fine to medium grained sand beaches & steep unvegetated river banks	7 - Exposed tidal flat
4 - Course grained sand beaches	8A- Sheltered vertical rock shores and vertical, hard man-made structures (e.g. seawalls, docks, bulkheads)
5 - Mixed sand and gravel beaches, including artificial fill containing a range of grain size and material	8B - Sheltered rubble slope
6A - Gravel beaches - pebbles to cobble	9A - Sheltered sand and mud flats
	9B - Sheltered vegetated low bank
	10 - Marshes

SHORELINE TYPES

COUNTERMEASURES	1	2	3	4	5	6A	6B	6C	7	8A	8B	9A	9B	10
CONVENTIONAL METHODS														
No action	R	R	C	C	C	C	C	C	R	C	C	R	C	R
Manual removal of oil			C	C	C	C	C	C		R	R		C	
Passive collection of oil	C	R	R	R	R	R	R	R	C	R	R	C	R	R
Oiled debris removal	C	C	R	R	R	R	R	R	C	R	R	C	C	C
Trenching/recovery wells			C	C	C									
Oiled sediment removal			C	C	C	C								
Ambient water flooding (Deluge)			C	C	C	R	R	R			C			C
Amb water flush <50 psi		C			C	C	C	C		R	C			C
Amb water flush <100 psi														
Warm water flush <90°F														
Hot water flush >90°F														
Vacuum removal of oil							C	C						C
Sediment reworking			C	C	C	C								
Sediment Removal-cleaning-replacement			C	C	C									
Cutting oiled vegetation							C	C		C	C		C	C
ALTERNATIVE METHODS*														
In-situ burning of shore														
Chemical stabilization, protection, cleaning														
Nutrient enhancement			C	C	C	C	C	C						C
Microbial addition														

R Recommend - May be Preferred Alternative

C Conditional (Refer to NW Shoreline Countermeasures Manual)

 Shaded areas are Not Applicable or Not Generally Recommended

* Follow approved process defined in NCP and NW Area Plan

This countermeasure advisability matrix is only a general guide for removal of oil from shoreline substrates. It must be used in conjunction with the entire Shoreline Countermeasures Manual plus field observations and scientific advice. The countermeasures listed are not necessarily the best under all circumstances, and any listed technique may need to be used in conjunction with other techniques (including ones not listed herein). The Federal On-Scene Coordinator (FOSC) or the state OSC operating with the FOSC's authorization has the responsibility for and the authority to determine which countermeasure(s) are appropriate for various situations encountered. Selection of countermeasures is based on the degree of oil contamination, the shoreline type, and the presence of sensitive resources.

SHORELINE COUNTERMEASURES MATRIX

Very Light Oil (Jet fuels, Gasoline)

- Highly volatile (should all evaporate within 1-2 days)
- High concentration of toxic (soluble) compounds
- Result: Localized, severe impacts to water column and intertidal resources
- Duration of impact is a function of the resource recovery rate
- No dispersion necessary

SHORELINE TYPES CODES


1- Exposed rock shores and vertical, hard man-made structure (e.g. seawalls)	6B - Gravel beaches - cobbles to boulders
2 - Exposed wave-cut platforms	6C - Exposed rip rap
3 - Fine to medium grained sand beaches & steep unvegetated river banks	7 - Exposed tidal flat
4 - Course grained sand beaches	8A- Sheltered vertical rock shores and vertical, hard man-made structures (e.g. seawalls, docks,
5 - Mixed sand and gravel beaches, including artificial fill containing a range of grain size and material	8B - Sheltered rubble slope
6A - Gravel beaches - pebbles to cobble	9A - Sheltered sand and mud flats
	9B - Sheltered vegetated low bank
	10 - Marshes

SHORELINE TYPES

COUNTERMEASURES	1	2	3	4	5	6A	6B	6C	7	8A	8B	9A	9B	10
CONVENTIONAL METHODS														
No action	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Manual removal of oil														
Passive collection of oil			C	C	C	C	C	C						
Oiled debris removal	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Trenching/recovery wells			C	C	C									
Oiled sediment removal														
Ambient water flooding (Deluge)														C
Amb water flush <50 psi														
Amb water flush <100 psi														
Warm water flush <90°F														
Hot water flush >90°F														
Vacuum removal of oil														
Sediment reworking			C	C	C	C								
Sediment Removal-cleaning-replacement														
Cutting oiled vegetation														
ALTERNATIVE METHODS*														
In-situ burning on shore														
Chemical stabilization, protection, cleaning														
Nutrient enhancement														
Microbial addition														

R Recommend - May be Preferred Alternative

C Conditional (Refer to NW Shoreline Countermeasures Manual)

 Shaded areas are Not Applicable or Not Generally Recommended

* Follow approved process defined in NCP and NW Area Plan

This countermeasure advisability matrix is only a general guide for removal of oil from shoreline substrates. It must be used in conjunction with the entire Shoreline Countermeasures Manual plus field observations and scientific advice. The countermeasures listed are not necessarily the best under all circumstances, and any listed technique may need to be used in conjunction with other techniques (including ones not listed herein). The Federal On-Scene Coordinator (FOSC) or the state OSC operating with the FOSC's authorization has the responsibility for and the authority to determine which countermeasure(s) are appropriate for various situations encountered. Selection of countermeasures is based on the degree of oil contamination, the shoreline type, and the presence of sensitive resources.

Purpose of Chapter 6

The information presented in this chapter highlights some of the more significant environmentally sensitive areas within the GRP region that could be impacted as a result of an oil spill. Consistent with the overall purpose of the GRP's, this information is only intended to provide a level of detail required during the initial phase of spill response. During an actual event, additional resource information will be available from the resource trustee agencies supporting the Environmental Unit in the Planning Section. Specific resource concerns for areas that already have designated protection strategies in Chapter 4 of the GRP may be found in the "Resources Protected" column in the matrix describing the individual strategies.

The information provided in Chapter 6 is intended for use in:

- Preparing an initial ICS 232 form (Resources-at-Risk summary) for Incident Command
- Identifying those sites where it may be necessary to implement Flight Restriction Zones in order to prevent disturbance/injury to sensitive wildlife species.
- Identifying sensitive shoreline habitats to assist SCAT teams in their initial assessments and to help personnel in the Environmental Unit in developing appropriate cleanup strategies.

Chapter 6 consists of two sets of maps and tables - one for wildlife and the other for fish, shellfish and selected sensitive marine habitats. These data are presented separately, both for ease of reading and because each of the two data sets has slightly different applications within the context of spill response.

The wildlife maps and tables present information on the location and seasonal sensitivity of key wildlife resources. Types of data included here are concentration areas for waterfowl, marine birds and shorebirds; seabird colonies; nesting areas for sensitive species such as eagles, herons and falcons; and marine mammal haulout sites. This information is intended for the rapid identification of areas where significant wildlife oiling impacts could be anticipated and to denote areas where flight restriction zones may be required to protect sensitive wildlife. Each site depicted on these maps is identified by a unique number in order to facilitate the process of communicating Flight Restriction Zone recommendations to the Operations Section in ICS. The tables accompanying the wildlife maps present information on the season(s) during which sites may be particularly sensitive to disturbance.

The fish/shellfish/marine habitat maps present general information on the location of baitfish spawning beaches, herring spawning areas, streams used by anadromous salmonids, hardshell clam concentrations, and kelp and eelgrass beds. This information will be most useful to personnel involved in assessing initial risks to fish and shellfish resources and to those conducting initial beach reconnaissance, pending availability of more detailed resource information and the formation of SCAT teams.

Because the operational uses of this information differ from those of the wildlife data, individual site identification numbers have not been assigned. Tables associated with these maps will identify the seasonal sensitivity of each resource. In addition, notes accompanying each table will provide information on the general distribution and seasonal sensitivity of those resources that are not mapped but may occur anywhere in the GRP region (ex. juvenile salmonids in shallow nearshore waters).

6. Sensitive Resource Description*

6.1. Marine Mammals

Common species of whales and dolphins found within the North Puget Sound GRP area include gray whale, orca, Dall's porpoise, and harbor porpoise. Additional species of whales or dolphins have been recorded as rare or accidental within this area. With regard to seals and sea lions, this area is home to one permanent resident, the harbor seal. Three additional species occur as regular seasonal residents or migrants: the Steller sea lion, California sea lion, and northern elephant seal. Although relatively few Steller sea lions are found in this area, this species is of special concern because it is listed as a Threatened species. This region also supports a large population of river otters which are largely marine in their habits.

The islands, nearshore rocks, and beaches of the region provide pupping and resting sites for harbor seals. The largest concentrations are found in the vicinities of Boundary Bay and Padilla Bay. Other smaller sites are scattered throughout the entire study area.

Nearshore waters are used as feeding areas by seals, sea lions, gray whales, harbor porpoise, and river otters while offshore waters are used primarily by species such as the orca and Dall's Porpoise. Offshore waters Also provide important transit corridors for animals moving through the study area.

6.2. Birds

Many species of marine birds and shorebirds are either residents or seasonal visitors within this GRP area. Much of the seabird nesting is scattered throughout the region on offshore rocks, exposed rocky coasts or on pilings. In aggregate, these sites represent an important contribution to the total seabird population of the area. In addition, there are several major nesting colonies in adjoining planning areas and many of the birds from these sites utilize the marine waters of North Puget Sound GRP area for feeding.

Bald eagles and peregrine falcons nest within the planning area and are closely associated with the marine ecosystem because of their feeding habits and choice of resting sites. This area because of its richness, hosts a large wintering population of bald eagles.

Marbled murrelets are unique among the area's seabirds because they nest inland in old-growth forests yet spend much of their time feeding and resting on marine waters in the nearshore environment. This species is of special concern since it has been shown to be highly vulnerable to oil spills and gillnet entanglement.

In addition to supporting a wide variety of resident birds, North Puget Sound is recognized as one of the most important waterfowl wintering areas on the Pacific flyway for waterfowl. This area has been identified as a key component in the North American waterfowl plan.

The three Endangered or Threatened species that breed in this GRP area are bald eagle, peregrine falcon and marbled murrelet.

* Generated for the GRP by the Spill Response and Resource Protection Team of the Washington Department of Fish and Wildlife

6.3. Flight Restriction Zones

Flight restriction zones have been designated in the GRP to minimize disturbance to certain wildlife species. An identified location could represent a marine mammal haulout site, a seabird or heron colony, or the individual nest of a sensitive species such as bald eagle. While some zones may be restricted year around, others will be in effect only during the months listed in the matrix.

The no-fly bubble is the area within a 1,500 foot radius and below 1,000 feet in altitude around the location.

All aircraft, including those from the government, contractors or media, are expected to avoid these zones when restrictions are in effect. In the event that one of these zones must be entered during a spill response, clearance must be obtained from the Washington Department of Fish and Wildlife and the United States Fish and Wildlife Service or when marine mammals other than sea otters are concerned, the National Marine Fisheries Service. Sea otters are managed by the United States Fish and Wildlife Service.

During oil spills, pilots are also asked to avoid disturbing any large concentrations of birds and other wildlife. By keeping a safe distance or altitude, pilots can prevent the accidental hazing of unaffected wildlife into oiled areas and minimize the risk of aircraft/ bird collisions.

6.4. Hazing

Hazing or directed harassment, is a method used to drive or herd wildlife out of an area where they are at risk of becoming oiled. Hazing techniques include the use of visual and audio devices, personnel for herding, vessels and aircraft. In the right circumstances it can be an effective tool for protecting some wildlife species. In other cases it can be disastrous as unaffected wildlife can be driven into oiled areas, or forced to abandon nests or young.

National Marine Fisheries Service staff or their designees will perform all hazing of marine mammals other than sea otters. Before hazing can begin for all other species of wildlife, clearance must be obtained from the Washington Department of Fisheries and Wildlife and the United States Fish and Wildlife Service. All hazing efforts during a spill will be directed by these agencies. The deliberate harassment of wildlife without first securing permission from these agencies is a violation of Federal and State laws.

The following information must be provided for a determination on whether hazing might be authorized in a given situation.

1. Description of the situation where hazing authorization is being sought
2. Location to be hazed
3. Species of wildlife to be hazed and number of animals
4. Methods and equipment used
5. Date and time of hazing
6. Name, phone number, radio frequency, pager number and the amount of hazing experience of the individual requesting permission

The responsible agencies will evaluate each request on a case by case basis. All hazing of marine mammals, threatened and endangered species, and all hazing by aircraft will be performed only under authority and general supervision of WDF&W, USFWS, NMFS or persons designated by these agencies.

Representatives of these agencies can be contacted through the planning section of the Unified Command System during the spill event.


6.5. Flight Restriction Zones/ Sensitive Wildlife


POINT ROBERTS FLIGHT RESTRICTION ZONES / SENSITIVE WILDLIFE

Map Page 18421

Code	Location	Seabird Colony	Seabird Conc	Waterfowl Conc	Marine Mammal Haulout	Sensitive Nesting Species	Shorebird Conc	Flight Restriction	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
W-1	Pt. Roberts					Yes		Yes												
W-2	Pt. Roberts peninsula, SE tip				Yes	Yes		Yes												
W-3	Boundary Bay				Yes			Yes												
W-54	Point Roberts							No												
W-55	North Boundary Bay			Yes				No												

FLIGHT AND GROUND ENTRY RESTRICTIONS

 Flights below 1000 feet require clearance: See appendix on Flight Restriction Zones

 Sensitive season - Minimize overflight disturbance

POINT ROBERTS FLIGHT RESTRICTION ZONES FOR SENSITIVE WILDLIFE SPECIES

1. Pilots refer to the chapter on Flight Restriction Zones.
2. All ground entry within 100 yards of sensitive nesting species is restricted.
3. All boaters are requested to approach no closer than 100 yards to seal and waterfowl concentrations.

● MARINE MAMMAL HAULOUT

● SENSITIVE SPECIES NESTING

⬢ BOAT LAUNCH

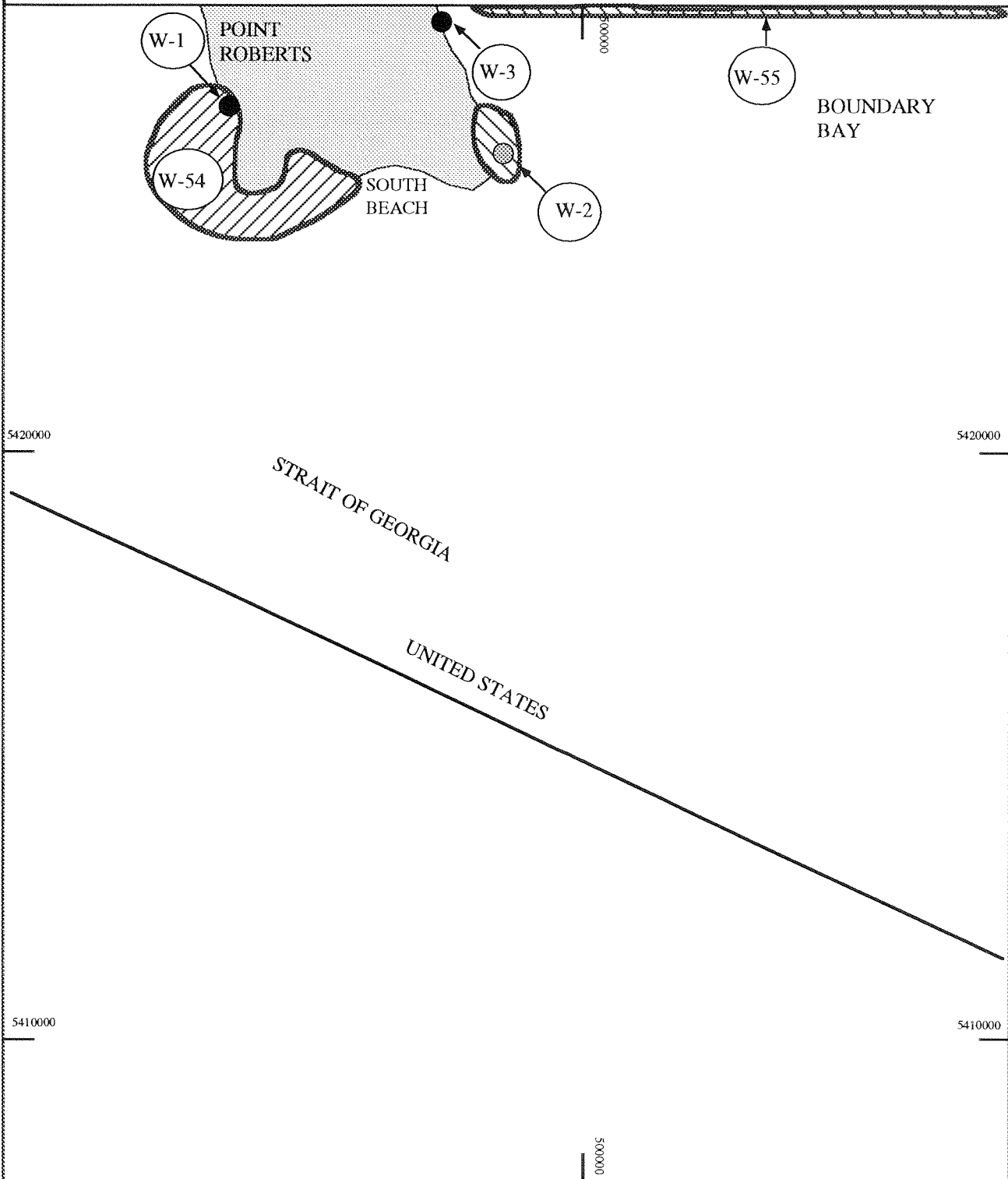
▨ PARK OR PUBLIC LAND

▨ RESERVATION

⊛ TOWN OR CITY



BIRD CONCENTRATION AREA




BLAINE FLIGHT RESTRICTION ZONES / SENSITIVE WILDLIFE

Map Page 18421

Code	Location	Seabird Colony	Seabird Conc	Waterfowl Conc	Mammal Haulout	Nesting Species	Shorebird Conc	Flight Restriction	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
W-5	Drayton Harbor Floats				Yes			Yes												
W-6	Drayton Harbor			Yes				No												
W-7	Semiahmoo Spit					Yes		Yes												
W-8	Birch Point				Yes	Yes		Yes												
W-9	Birch Bay			Yes				No												
W-10	Cherry Point					Yes		Yes												
W-55	North Boundary Bay			Yes				No												
W-56	Semiahmoo Bay	Yes						No												

FLIGHT AND GROUND ENTRY RESTRICTIONS

 Flights below 1000 feet require clearance: See appendix on Flight Restriction Zones

 Sensitive season - Minimize overflight disturbance

BLAINE**FLIGHT RESTRICTION ZONES FOR SENSITIVE WILDLIFE SPECIES**

1. Pilots refer to the chapter on Flight Restriction Zones.
2. All ground entry within 100 yards of sensitive nesting species is restricted.
3. All boaters are requested to approach no closer than 100 yards to seal and waterfowl concentrations.



● MARINE MAMMAL HAULOUT

● SENSITIVE SPECIES NESTING

⊠ BOAT LAUNCH

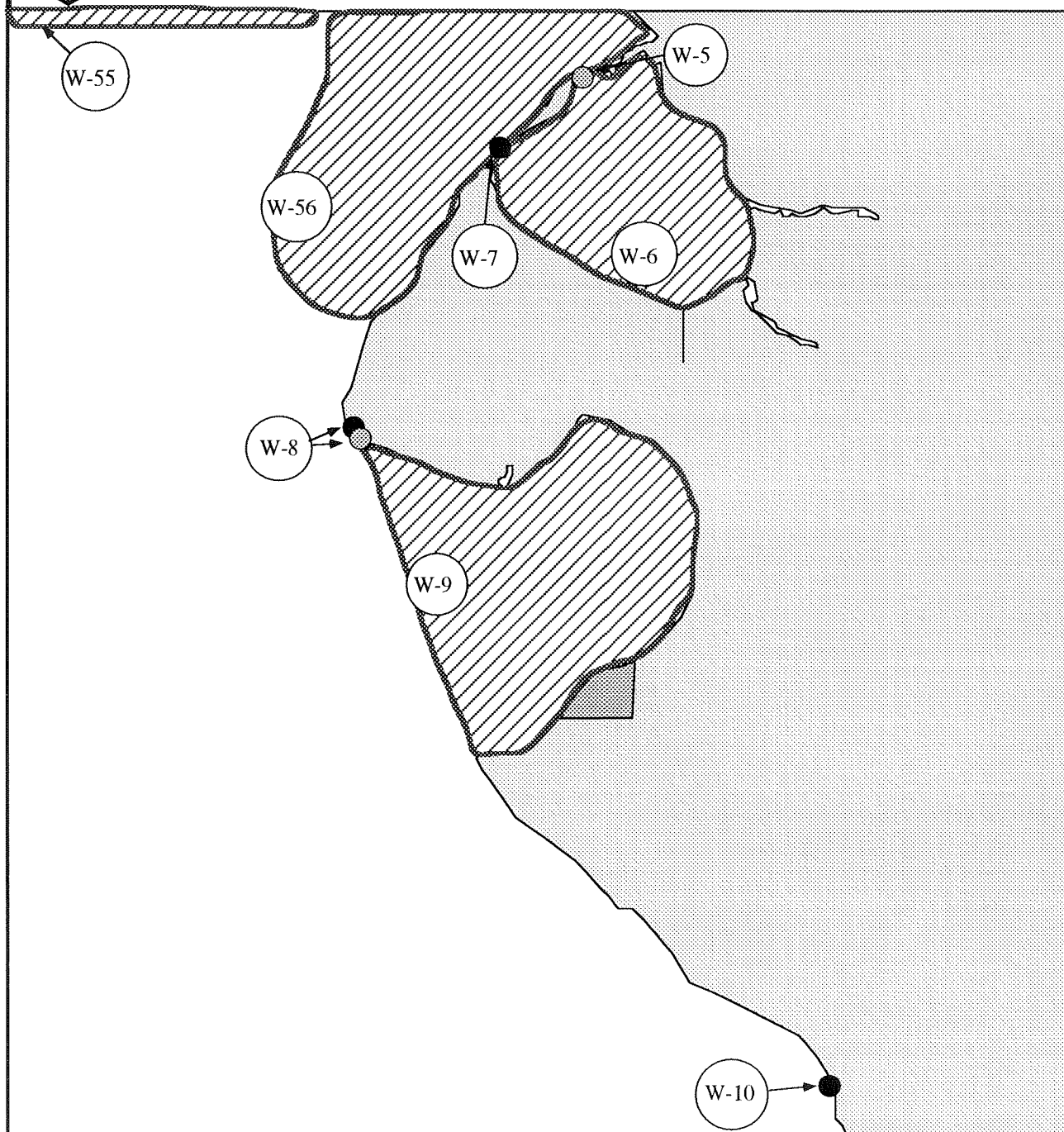
▨ PARK OR PUBLIC LAND

▨ RESERVATION

⊛ TOWN OR CITY



BIRD CONCENTRATION AREA




MATIA FLIGHT RESTRICTION ZONES / SENSITIVE WILDLIFE

Map Page 18421

Code	Location	Seabird Colony	Seabird Conc	Waterfowl Conc	Mammal Haulout	Nesting Species	Shorebird Conc	Flight Restriction	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
W-11	Lummi Bay			Yes			Yes	No												
W-18	Pt. Migley				Yes			Yes												
W-58	Hale Passage	Yes						No												
W-59	Lummi Island		Yes					No												
W-90	Shoal Bay		Yes	Yes				No												
W-96	Pt Lawrence		Yes	Yes				No												
W-99	Puffin Island	Yes			Yes			Yes												
W-100	Suein Island				Yes	Yes		Yes												




FLIGHT AND GROUND ENTRY RESTRICTIONS




 Flights below 1000 feet require clearance: See appendix on Flight Restriction Zones

 Sensitive season - Minimize overflight disturbance

MATIA ISLAND/ NORTH ORCAS ISLAND FLIGHT RESTRICTION ZONES FOR SENSITIVE WILDLIFE SPECIES

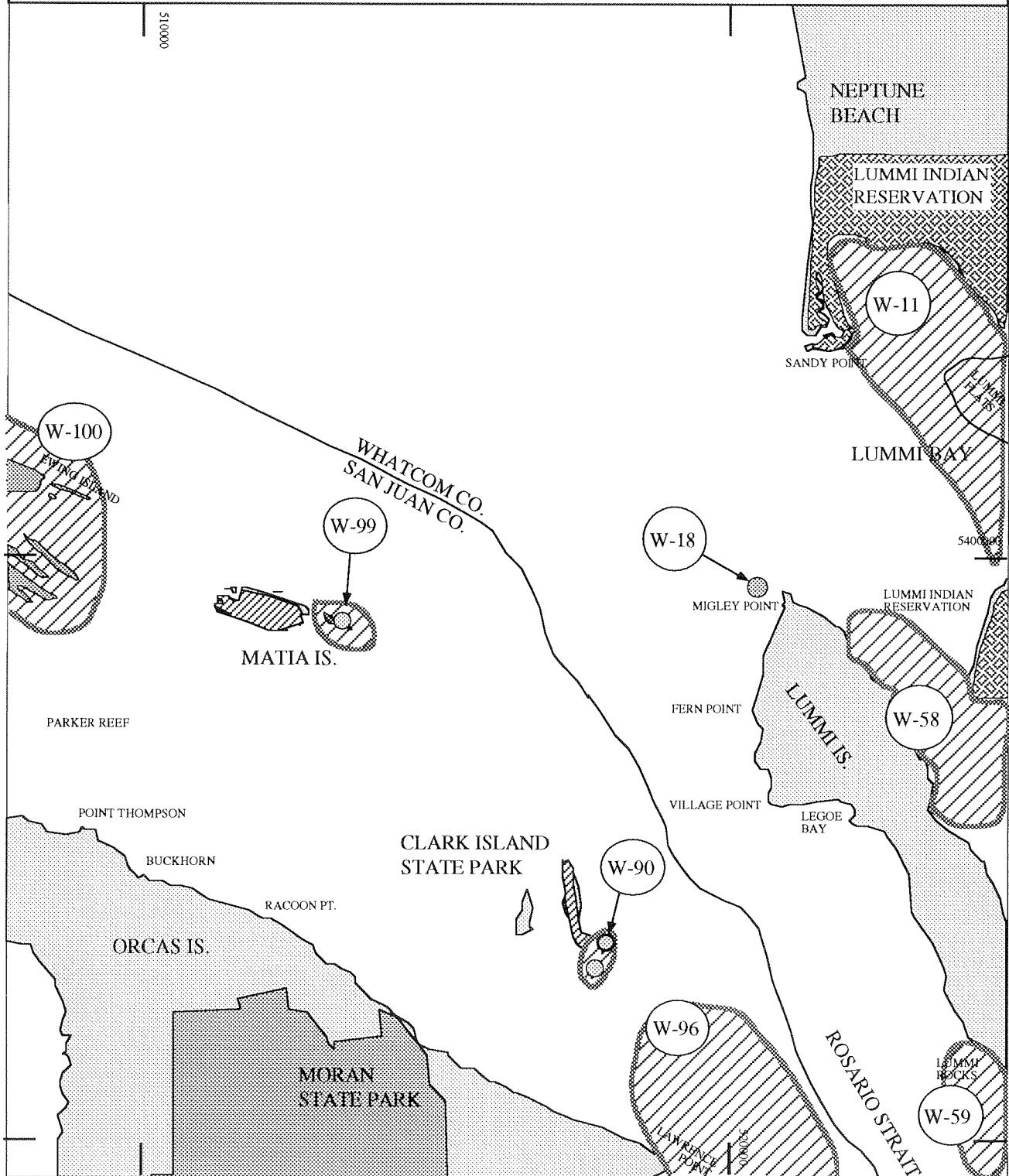
1. Pilots refer to the chapter on Flight Restriction Zones.
2. All ground entry within 100 yards of sensitive nesting species is restricted.
3. All boaters are requested to approach no closer than 100 yards to seal and waterfowl concentrations.

 MARINE MAMMAL HAULOUT
 SENSITIVE SPECIES NESTING
 BOAT LAUNCH

 PARK OR PUBLIC LAND
 RESERVATION
 TOWN OR CITY



BIRD CONCENTRATION AREA



BELLINGHAM FLIGHT RESTRICTION ZONES / SENSITIVE WILDLIFE

Map Page 18421

Code	Location	Seabird Colony	Seabird Conc	Waterfowl Conc	Marine Mammal Haulout	Sensitive Nesting Species	Shorebird Conc	Flight Restriction	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
W-12	East Lummi Bay					Yes		Yes												
W-13	N Bellingham Bay		Yes	Yes			Yes	No												
W-13a	Fish Point					Yes		Yes												
W-14	East Portage Island					Yes		Yes												
W-15	West Portage Island					Yes		Yes												
W-16	Bellingham Harbor				Yes			Yes												
W-17	Chuckanut Bay				Yes	Yes		Yes												
W-58	Hale Passage	Yes						No												
W-59	Lummi Island		Yes					No												

FLIGHT AND GROUND ENTRY RESTRICTIONS

Flights below 1000 feet require clearance: See appendix on Flight Restriction Zones

Sensitive season - Minimize overflight disturbance

BELLINGHAM**FLIGHT RESTRICTION ZONES FOR SENSITIVE WILDLIFE SPECIES**

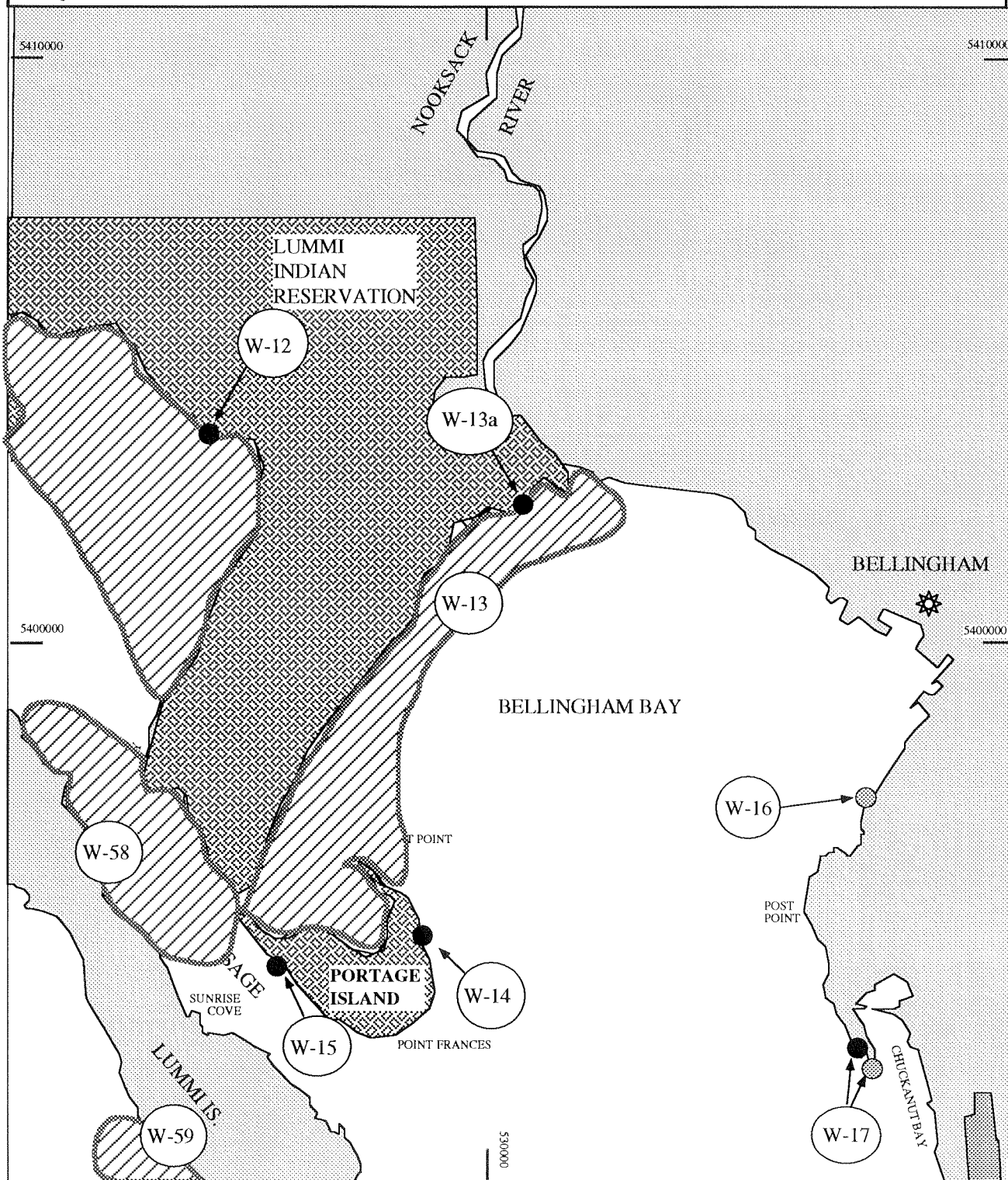
1. Pilots refer to the chapter on Flight Restriction Zones.
2. All ground entry within 100 yards of sensitive nesting species is restricted.
3. All boaters are requested to approach no closer than 100 yards to seal and waterfowl concentrations.

● MARINE MAMMAL HAULOUT
● SENSITIVE SPECIES NESTING
⊞ BOAT LAUNCH

▨ PARK OR PUBLIC LAND
▨ RESERVATION
⊙ TOWN OR CITY



BIRD CONCENTRATION AREA




SOUTH BELLINGHAM FLIGHT RESTRICTION ZONES / SENSITIVE WILDLIFE

Map Page 18421

Code	Location	Seabird Colony	Seabird Conc	Waterfowl Conc	Marine Mammal Haulout	Sensitive Nesting Species	Shorebird Conc	Flight Restriction	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
W-16	Bellingham Harbor				Yes			Yes												
W-17	Chuckanut Bay				Yes	Yes		Yes												
W-21	Eliza Rock				Yes	Yes		Yes												
W-35	Wildcat Cove				Yes			Yes												
W-36	Central Samish Bay				Yes			Yes												
W-37	South Samish Bay				Yes			Yes												
W-38	Samish Bay			Yes				No												

FLIGHT AND GROUND ENTRY RESTRICTIONS

 Flights below 1000 feet require clearance: See appendix on Flight Restriction Zones

 Sensitive season - Minimize overflight disturbance

6-12

December 6, 1994

SAN JUAN ISLANDS/ NORTH PUGGET SOUND GRP

SOUTH BELLINGHAM**FLIGHT RESTRICTION ZONES FOR SENSITIVE WILDLIFE SPECIES**

1. Pilots refer to the chapter on Flight Restriction Zones.
2. All ground entry within 100 yards of sensitive nesting species is restricted.
3. All boaters are requested to approach no closer than 100 yards to seal and waterfowl concentrations.



MARINE MAMMAL HAULOUT

SENSITIVE SPECIES NESTING

BOAT LAUNCH

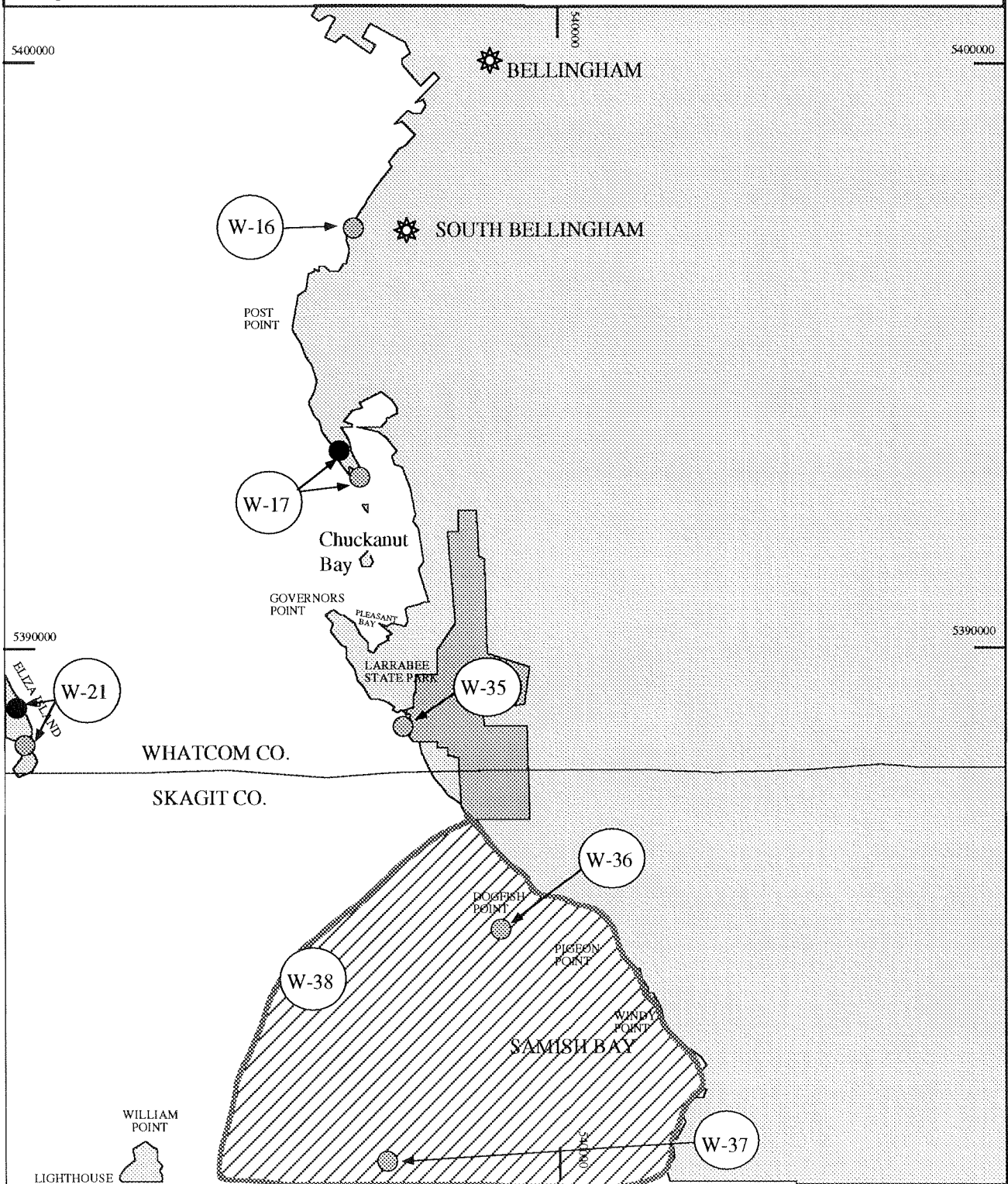
PARK OR PUBLIC LAND

RESERVATION

TOWN OR CITY



BIRD CONCENTRATION AREA



ROSARIO STRAIT FLIGHT RESTRICTION ZONES / SENSITIVE WILDLIFE

Map Page 18421

Code	Location	Seabird Colony	Seabird Conc	Waterfowl Conc	Marine Mammal Haulout	Sensitive Nesting Species	Shorebird Conc	Flight Restriction	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
W-20	Carter Point					Yes		Yes												
W-21	Eliza Rock				Yes	Yes		Yes												
W-22	Viti Rocks	Yes			Yes			Yes												
W-23	Vendovi Island				Yes			Yes												
W-24	NE Vendovi I.					Yes		Yes												
W-25	Sinclair Island				Yes	Yes		Yes												
W-26	Boulder Reef				Yes			Yes												
	Cypress Reef																			
W-27	Buckeye Shoal				Yes			Yes												
W-28	Eagle Cliff					Yes		Yes												
W-29	Stawberry Island					Yes		Yes												
W-30	Reef Point					Yes		Yes												
W-31	S Shore of Deception Bay					Yes		Yes												
W-32	Clark Point					Yes		Yes												
W-33	Guemes Island					Yes		Yes												
W-40	Jack Island					Yes		Yes												
W-47	N Fidalgo Bay				Yes			Yes												
W-48	Fidalgo Island					Yes		Yes												
W-59	Lummi Island		Yes					No												
W-60	Sinclair Island			Yes				No												
W-61	Guemes Channel		Yes					No												
W-62	West Cypress		Yes					No												
W-64	B'ham Channel		Yes					No												
W-66	Fidalgo Head	Yes						No												
W-85	S Rosario Strait		Yes					No												
W-88	Thatcher Pass	Yes						Yes												
	Obstruction/Peavine Pass		Yes					No												
W-96	Pt Lawrence		Yes	Yes				No												
W-97	Peapod Rocks	Yes			Yes			Yes												

FLIGHT AND GROUND ENTRY RESTRICTIONS



Flights below 1000 feet require clearance: See appendix on Flight Restriction Zones



Sensitive season - Minimize overflight disturbance

ROSARIO STRAIT

FLIGHT RESTRICTION ZONES FOR SENSITIVE WILDLIFE SPECIES

1. Pilots refer to the chapter on Flight Restriction Zones.
2. All ground entry within 100 yards of sensitive nesting species is restricted.
3. All boaters are requested to approach no closer than 100 yards to seal and waterfowl concentrations.

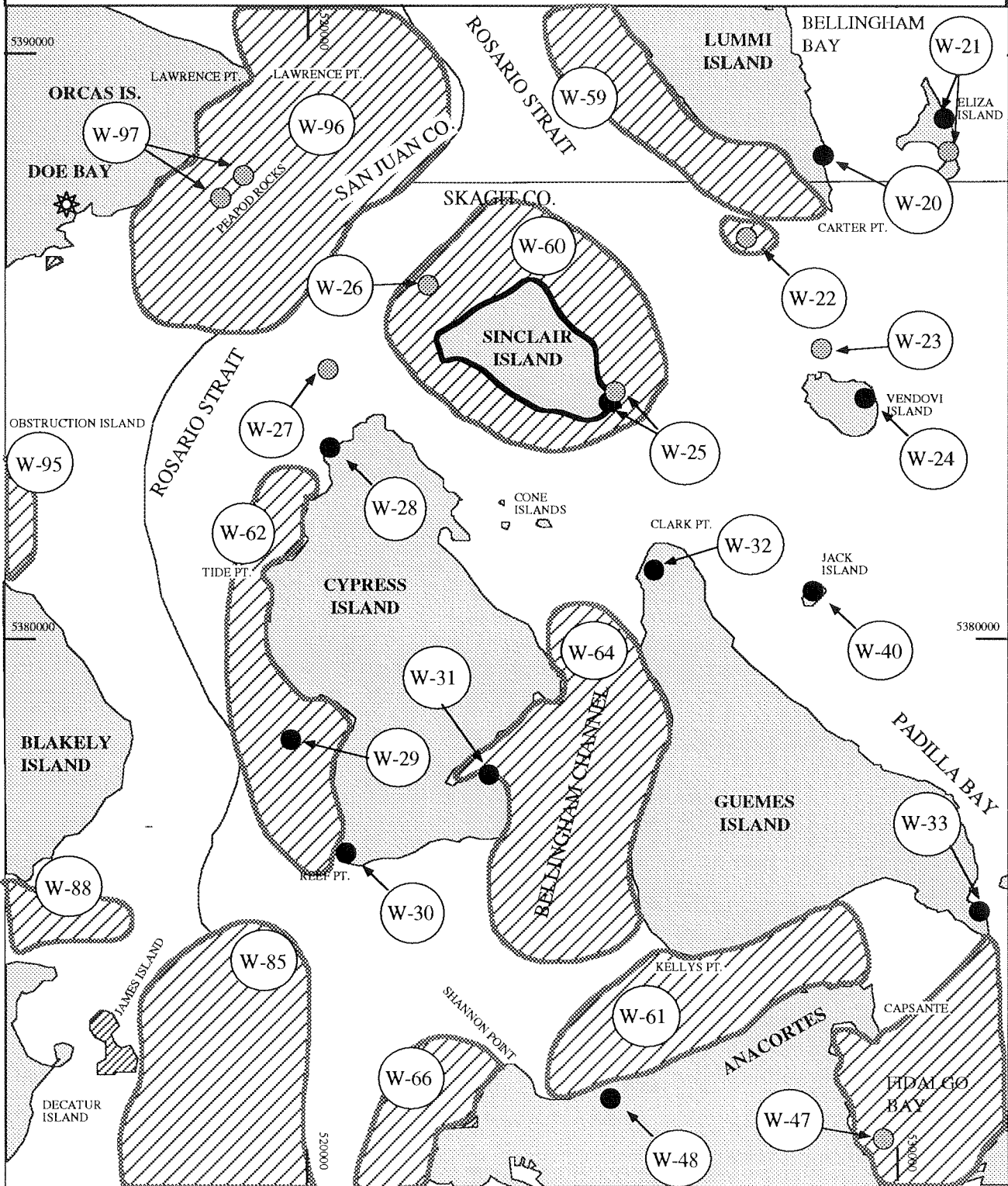


MARINE MAMMAL HAULOUT
 SENSITIVE SPECIES NESTING
 BOAT LAUNCH

PARK OR PUBLIC LAND
 RESERVATION
 TOWN OR CITY



BIRD CONCENTRATION AREA




PADILLA BAY FLIGHT RESTRICTION ZONES / SENSITIVE WILDLIFE

Map Page 18421

Code	Location	Seabird Colony	Seabird Conc	Waterfowl Conc	Marine Mammal Haulout	Sensitive Nesting Species	Shorebird Conc	Flight Restriction	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
W-33	Guemes Island					Yes		Yes												
W-34	William Point					Yes		Yes												
W-38	Samish Bay			Yes				No												
W-39	Samish Island					Yes		Yes												
W-41	Hat Island					Yes		Yes												
W-42	North Padilla Bay				Yes			Yes												
W-43	East Padilla Bay					Yes		Yes												
W-44	Fidalgo Bay/Fidalgo Bay			Yes	Yes		Yes	Yes												
W-45	South Padilla Bay Sloughs				Yes			Yes												
W-46	SW Padilla Bay	Yes				Yes		Yes												

FLIGHT AND GROUND ENTRY RESTRICTIONS

 Flights below 1000 feet require clearance: See appendix on Flight Restriction Zones

 Sensitive season - Minimize overflight disturbance

6-16

December 6, 1994

SAN JUAN ISLANDS/ NORTH PUGET SOUND GRP

PADILLA BAY**FLIGHT RESTRICTION ZONES FOR SENSITIVE WILDLIFE SPECIES**

1. Pilots refer to the chapter on Flight Restriction Zones.
2. All ground entry within 100 yards of sensitive nesting species is restricted.
3. All boaters are requested to approach no closer than 100 yards to seal and waterfowl concentrations.

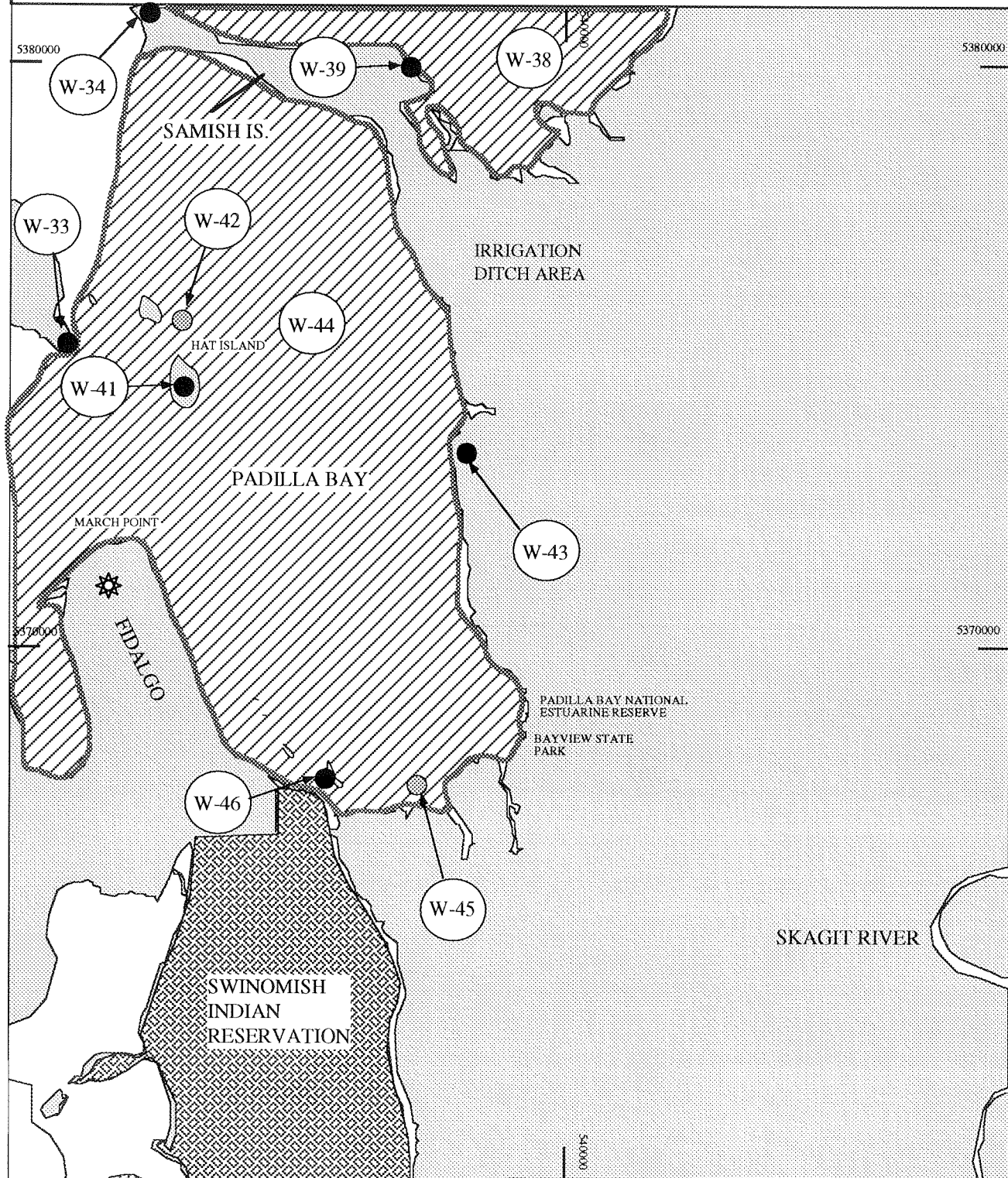


- MARINE MAMMAL HAULOUT
- SENSITIVE SPECIES NESTING
- ⬢ BOAT LAUNCH

- ▨ PARK OR PUBLIC LAND
- ▨ RESERVATION
- ★ TOWN OR CITY



BIRD CONCENTRATION AREA



DECEPTION PASS FLIGHT RESTRICTION ZONES / SENSITIVE WILDLIFE

									Flight and Ground Entry Restrictions *											
Map Page 18441		Seabird	Seabird	Waterfowl	Marine Mammal	Sensitive	Shorebird	Flight	PERIOD OF SENSITIVITY											
Code	Location	Colony	Conc	Conc	Haulout	nesting species	concentration	Exclusion	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
W-44	Fidalgo Bay			Yes	Yes		Yes	Yes												
W-45	S. Padilla Bay Sloughs				Yes			Yes												
W-46	SW Padilla Bay	Yes				Yes		Yes												
W-47	North Fidalgo Bay				Yes			Yes												
W-51	Williamson Rocks	Yes			Yes			Yes												
W-52	Biz Point					Yes		Yes												
W-53	Deception Island					Yes		Yes												
W-63	Burrows Bay			Yes				No												
W-65	Deception Pass		Yes					No												
WNC-22	Ika Island					Yes		Yes												
WNC-23	Deadman Island					Yes		Yes												
WNC-24	Hope Island					Yes		Yes												
WNC-25	Kiket Island					Yes		Yes												
WNC-26	N. Similk Bay			Yes				Yes												
WNC-27	Hoypus Point					Yes		Yes												
WNC-28	Deception Pass		Yes			Yes		Yes												
WNC-29	Duguala Bay (N.)					Yes		Yes												
WNC-30	Duguala Bay			Yes				Yes												
WNC-31	Duguala Bay (S.)					Yes		Yes												

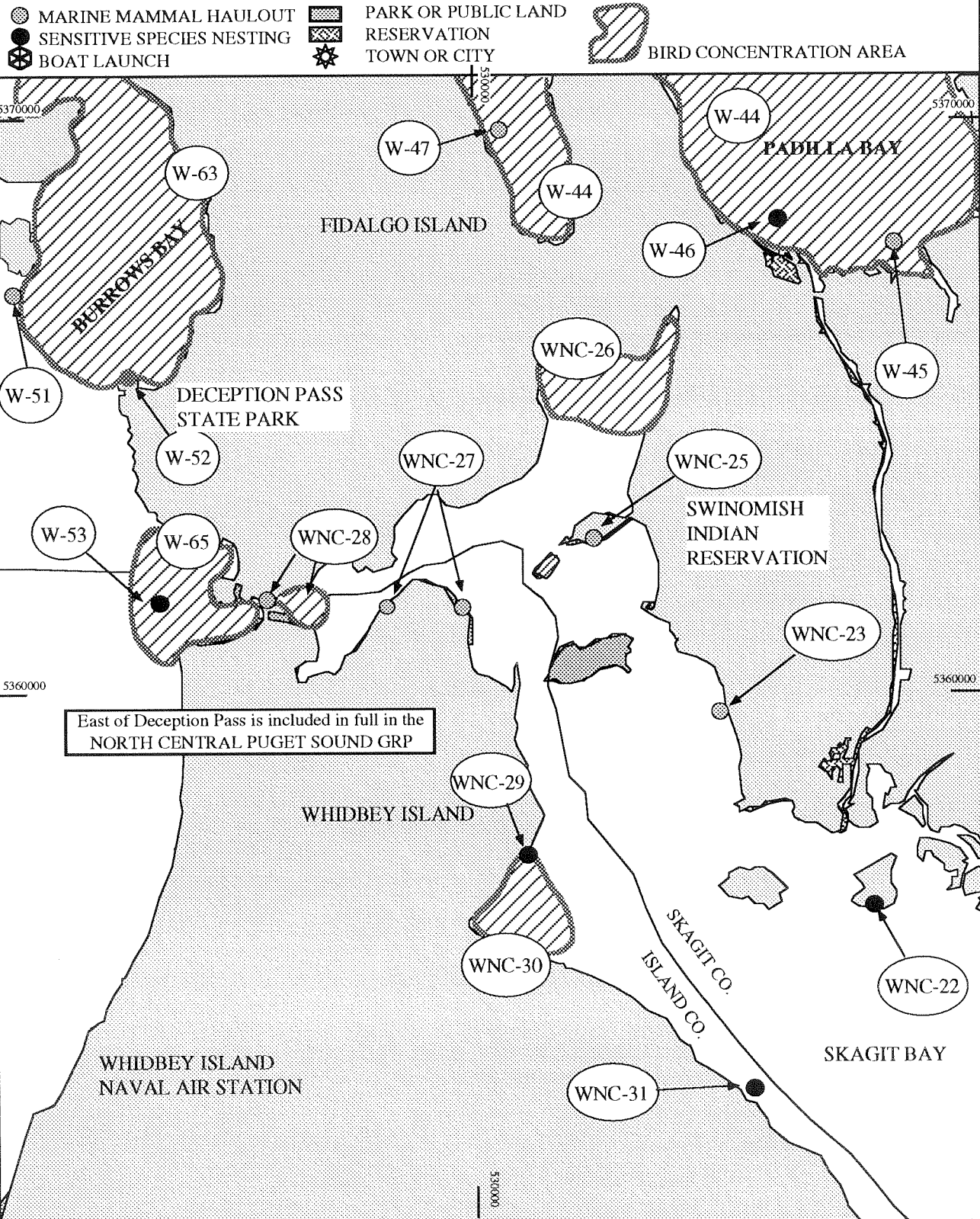
* FLIGHT AND GROUND ENTRY RESTRICTIONS

 Flights below 1000 feet require clearance: See appendix on Flight Restriction Zones

 Sensitive season - Minimize overflight disturbance

DECEPTION PASS**FLIGHT RESTRICTION ZONES FOR SENSITIVE WILDLIFE SPECIES**

1. Pilots refer to the chapter on Flight Restriction Zones.
2. All ground entry within 100 yards of sensitive nesting species is restricted.
3. All boaters are requested to approach no closer than 100 yards to seal and waterfowl concentrations.



SOUTH LOPEZ ISLAND FLIGHT RESTRICTION ZONES / SENSITIVE WILDLIFE

Map Page 18421

Code	Location	Seabird Colony	Seabird Conc	Waterfowl Conc	Marine Mammal Haulout	Sensitive Nesting Species	Shorebird Conc	Flight Restriction	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
WS-23	Smith Island				Yes			Yes												
W-49	Burrows Island				Yes			Yes												
W-50	Allan Island				Yes	Yes		Yes												
W-79	Cattle Pass		Yes					No												
W-80	Whale rocks				Yes			Yes												
W-81	Long Island/ Hall Island Complex	Yes			Yes			Yes												
W-82	Iceberg Point				Yes			Yes												
W-83	Colville Island/ Castle Island	Yes			Yes			Yes												
W-84	Lopez Island, South		Yes					No												
W-85	South Rosario Strait		Yes					No												
W-86	Bird Rocks	Yes			Yes			Yes												
W-97	Peapod Rocks	Yes			Yes			Yes												

FLIGHT AND GROUND ENTRY RESTRICTIONS

 Flights below 1000 feet require clearance: See appendix on Flight Restriction Zones

 Sensitive season - Minimize overflight disturbance

SOUTH LOPEZ ISLAND**FLIGHT RESTRICTION ZONES FOR SENSITIVE WILDLIFE SPECIES**

1. Pilots refer to the chapter on Flight Restriction Zones.
2. All ground entry within 100 yards of sensitive nesting species is restricted.
3. All boaters are requested to approach no closer than 100 yards to seal and waterfowl concentrations.

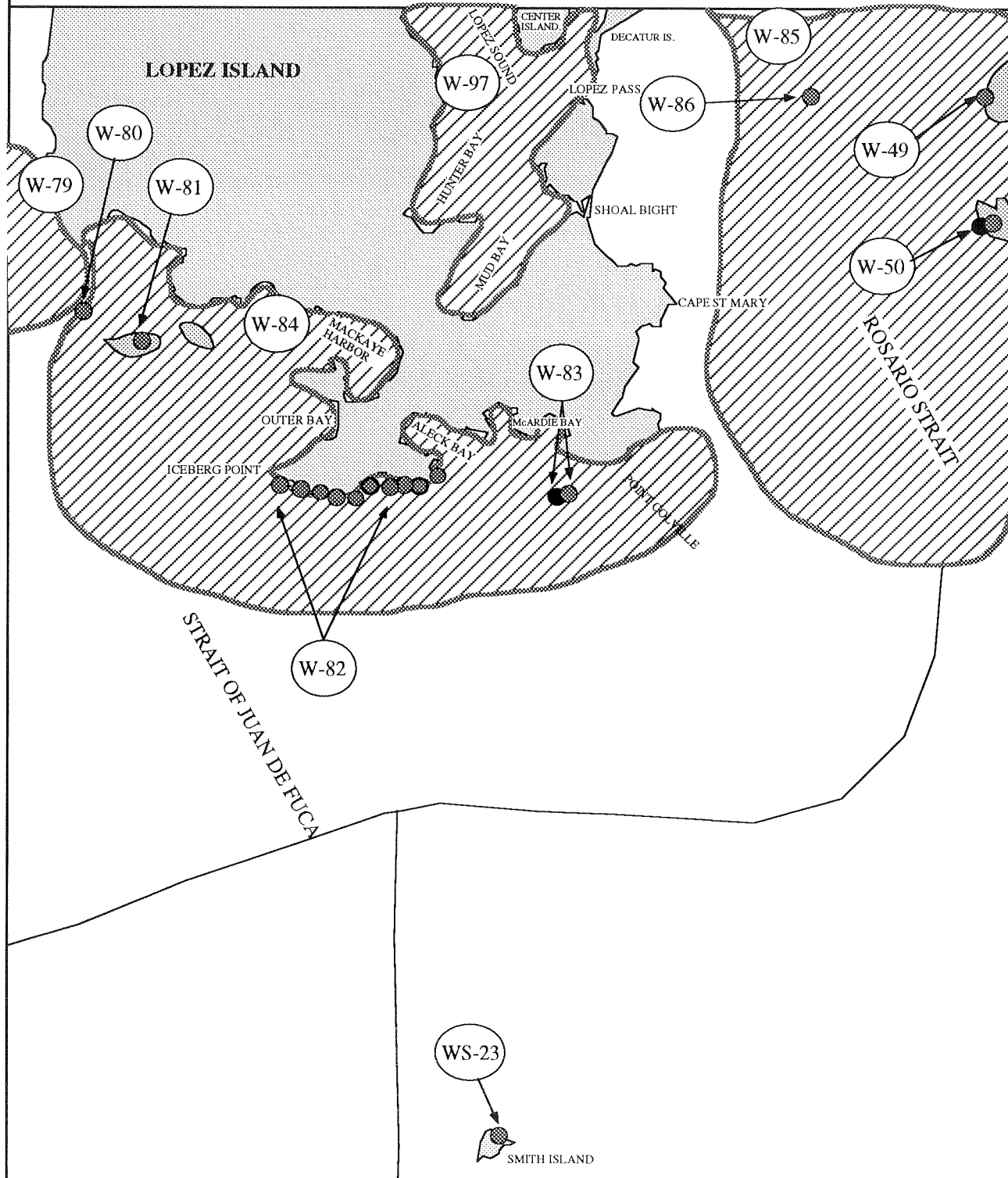


- MARINE MAMMAL HAULOUT
- SENSITIVE SPECIES NESTING
- ⬢ BOAT LAUNCH

- ▨ PARK OR PUBLIC LAND
- ▨ RESERVATION
- ★ TOWN OR CITY



BIRD CONCENTRATION AREA





SOUTH ORCAS ISLAND FLIGHT RESTRICTION ZONES / SENSITIVE WILDLIFE

Map Page 18421

Code	Location	Seabird Colony	Seabird Conc	Waterfowl Conc	Marine Mammal Haulout	Sensitive Nesting Species	Shorebird Conc	Flight Restriction	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
W-75	Griffin Bay			Yes				No												
W-76	Dinner Island				Yes	Yes		Yes												
W-77	Friday Harbor		Yes	Yes				No												
W-78	Southern San Juan		Yes					No												
W-88	Thatcher Pass	Yes						Yes												
W-89	Swift Bay		Yes	Yes				No												
W-90	Shoal Bay		Yes	Yes				No												
W-91	Fisherman Bay		Yes	Yes				No												
W-92	Blind Bay		Yes	Yes				No												
W-93	Wasp Island				Yes	Yes		Yes												
W-94	Wasp Pass		Yes					No												
W-95	Obstruction/ Peavine Pass		Yes					No												
W-97	Peapod Rocks	Yes			Yes			Yes												

FLIGHT AND GROUND ENTRY RESTRICTIONS

-  Flights below 1000 feet require clearance: See appendix on Flight Restriction Zones
-  Sensitive season - Minimize overflight disturbance

SOUTH ORCAS ISLAND**FLIGHT RESTRICTION ZONES FOR SENSITIVE WILDLIFE SPECIES**

1. Pilots refer to the chapter on Flight Restriction Zones.
2. All ground entry within 100 yards of sensitive nesting species is restricted.
3. All boaters are requested to approach no closer than 100 yards to seal and waterfowl concentrations.

○ MARINE MAMMAL HAULOUT

● SENSITIVE SPECIES NESTING

⬢ BOAT LAUNCH



PARK OR PUBLIC LAND



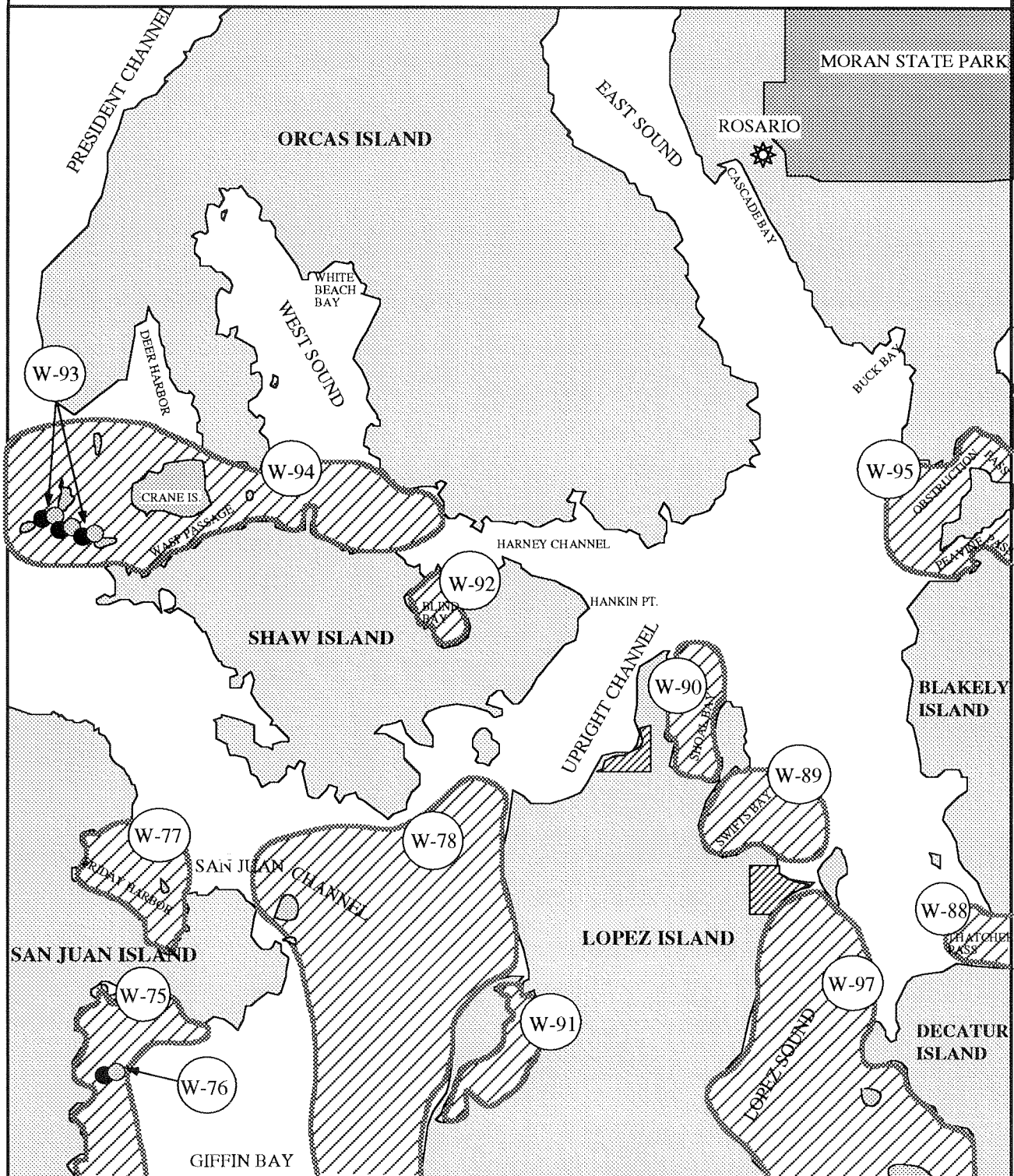
RESERVATION



TOWN OR CITY



BIRD CONCENTRATION AREA



SOUTH SAN JUAN ISLAND FLIGHT RESTRICTION ZONES / SENSITIVE WILDLIFE

Map Page 18421

Code	Location	Seabird Colony	Seabird Conc	Waterfowl Conc	Marine Mammal Haulout	Sensitive Nesting Species	Shorebird Conc	Flight Restriction	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
W-73	False Bay		Yes	Yes				No												
W-74	Salmon Bank		Yes	Yes				No												
W-75	Griffin Bay			Yes				No												
W-76	Dinner Island				Yes	Yes		Yes												
W-77	Friday Harbor		Yes	Yes				No												
W-78	Southern San Juan		Yes					No												
W-79	Cattle Pass		Yes					No												

FLIGHT AND GROUND ENTRY RESTRICTIONS

 Flights below 1000 feet require clearance: See appendix on Flight Restriction Zones

 Sensitive season - Minimize overflight disturbance

SOUTH SAN JUAN ISLAND**FLIGHT RESTRICTION ZONES FOR SENSITIVE WILDLIFE SPECIES**

1. Pilots refer to the chapter on Flight Restriction Zones.
2. All ground entry within 100 yards of sensitive nesting species is restricted.
3. All boaters are requested to approach no closer than 100 yards to seal and waterfowl concentrations.

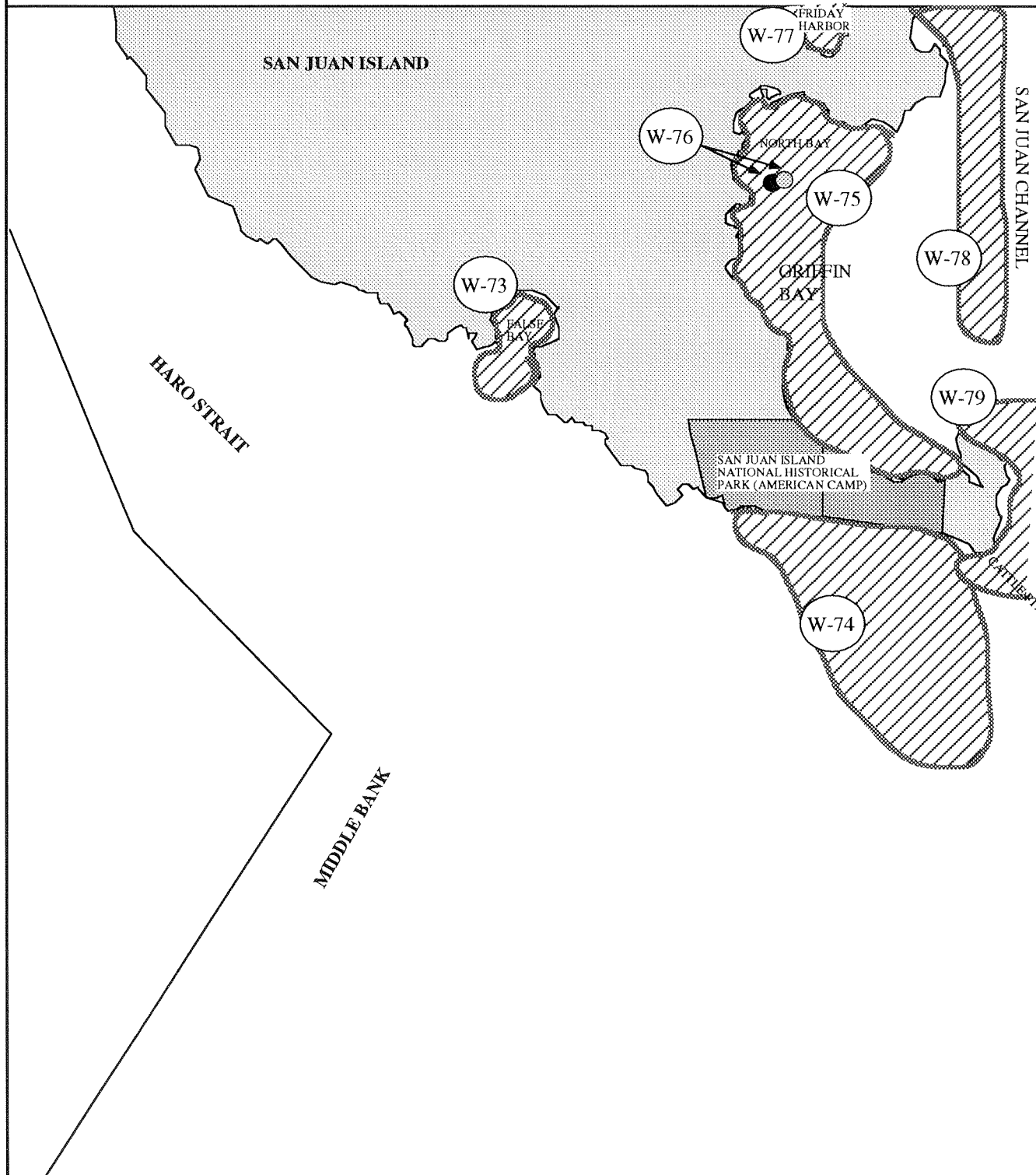


○ MARINE MAMMAL HAULOUT
● SENSITIVE SPECIES NESTING
⊗ BOAT LAUNCH

▨ PARK OR PUBLIC LAND
▩ RESERVATION
⊛ TOWN OR CITY



BIRD CONCENTRATION AREA





NORTH SAN JUAN ISLAND FLIGHT RESTRICTION ZONES / SENSITIVE WILDLIFE

Map Page 18421

Code	Location	Seabird Colony	Seabird Conc	Waterfowl Conc	Marine Mammal Haulout	Sensitive Nesting Species	Shorebird Conc	Flight Restriction	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
W-68	Cactus Island				Yes	Yes		Yes												
W-69	Sentinel Island				Yes	Yes		Yes												
W-70	Speiden Channel		Yes					No												
W-71	Roche Harbor	Yes		Yes				No												
W-72	Rocky Bay/O'Neal Island				Yes	Yes		Yes												
W-94	Wasp Pass		Yes					No												
W-104	Cowlitz Bay		Yes	Yes				No												
W-105	White Rock	Yes			Yes			Yes												

FLIGHT AND GROUND ENTRY RESTRICTIONS




 Flights below 1000 feet require clearance: See appendix on Flight Restriction Zones

 Sensitive season - Minimize overflight disturbance

NORTH SAN JUAN ISLAND**FLIGHT RESTRICTION ZONES FOR SENSITIVE WILDLIFE SPECIES**

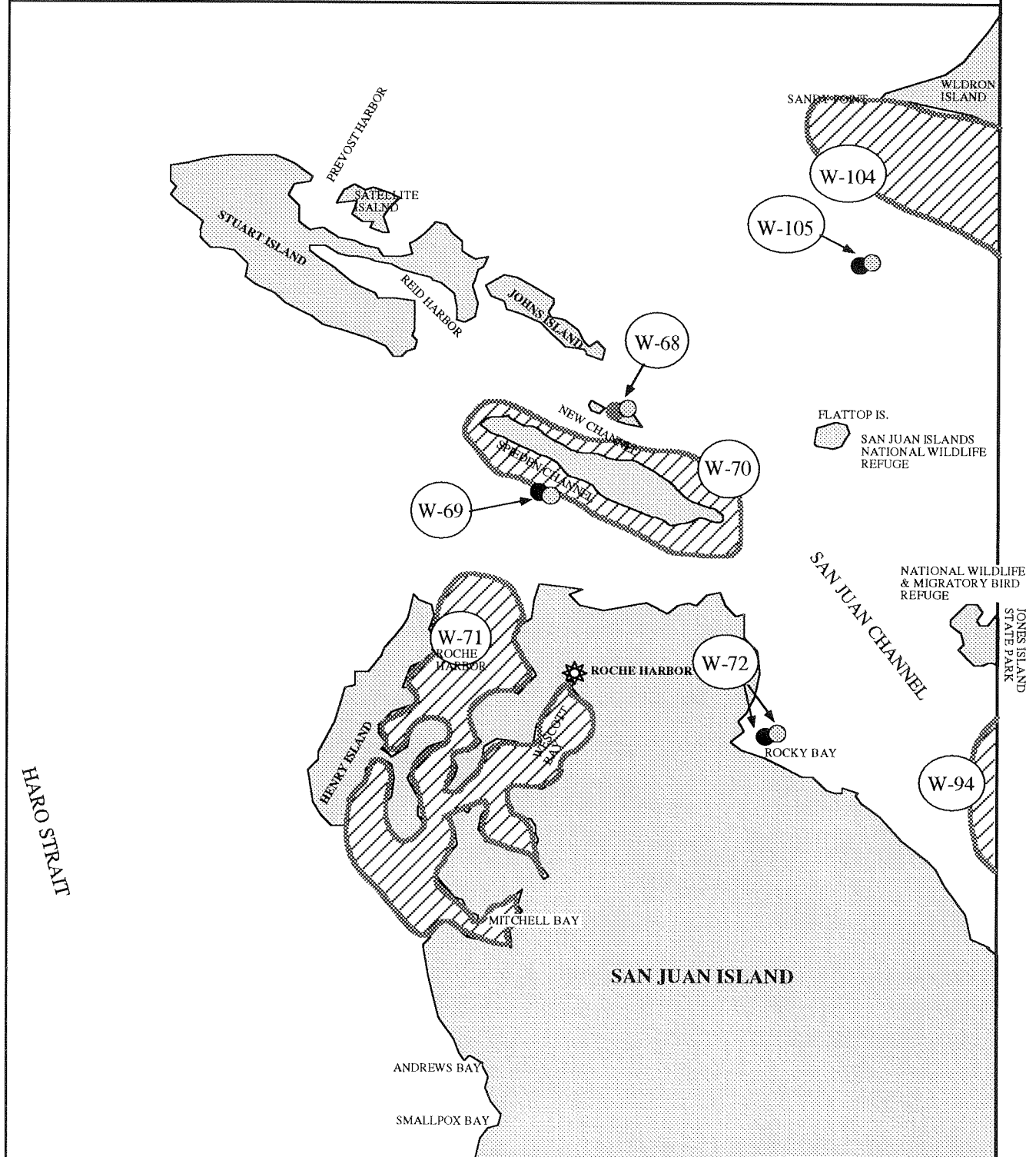
1. Pilots refer to the chapter on Flight Restriction Zones.
2. All ground entry within 100 yards of sensitive nesting species is restricted.
3. All boaters are requested to approach no closer than 100 yards to seal and waterfowl concentrations.

 MARINE MAMMAL HAULOUT
 SENSITIVE SPECIES NESTING
 BOAT LAUNCH

 PARK OR PUBLIC LAND
 RESERVATION
 TOWN OR CITY



BIRD CONCENTRATION AREA



WALDRON ISLAND FLIGHT RESTRICTION ZONES / SENSITIVE WILDLIFE

Map Page 18421

Code	Location	Seabird Colony	Seabird Conc	Waterfowl Conc	Marine Mammal Haulout	Sensitive Nesting Species	Shorebird Conc	Flight Restriction	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
W-100	Suein Island				Yes	Yes		Yes												
W-101	Patos Island				Yes	Yes		Yes												
W-102	NW of Patos Island		Yes					No												
W-103	Skipjack Island/ Bare Island	Yes			Yes	Yes		Yes												
W-104	Cowlitz Bay		Yes	Yes				No												
W-105	White Rock	Yes			Yes			Yes												
W-106	Doughty Point				Yes	Yes		Yes												




FLIGHT AND GROUND ENTRY RESTRICTIONS

- Flights below 1000 feet require clearance: See appendix on Flight Restriction Zones
- Sensitive season - Minimize overflight disturbance

WALDRON ISLAND**FLIGHT RESTRICTION ZONES FOR SENSITIVE WILDLIFE SPECIES**

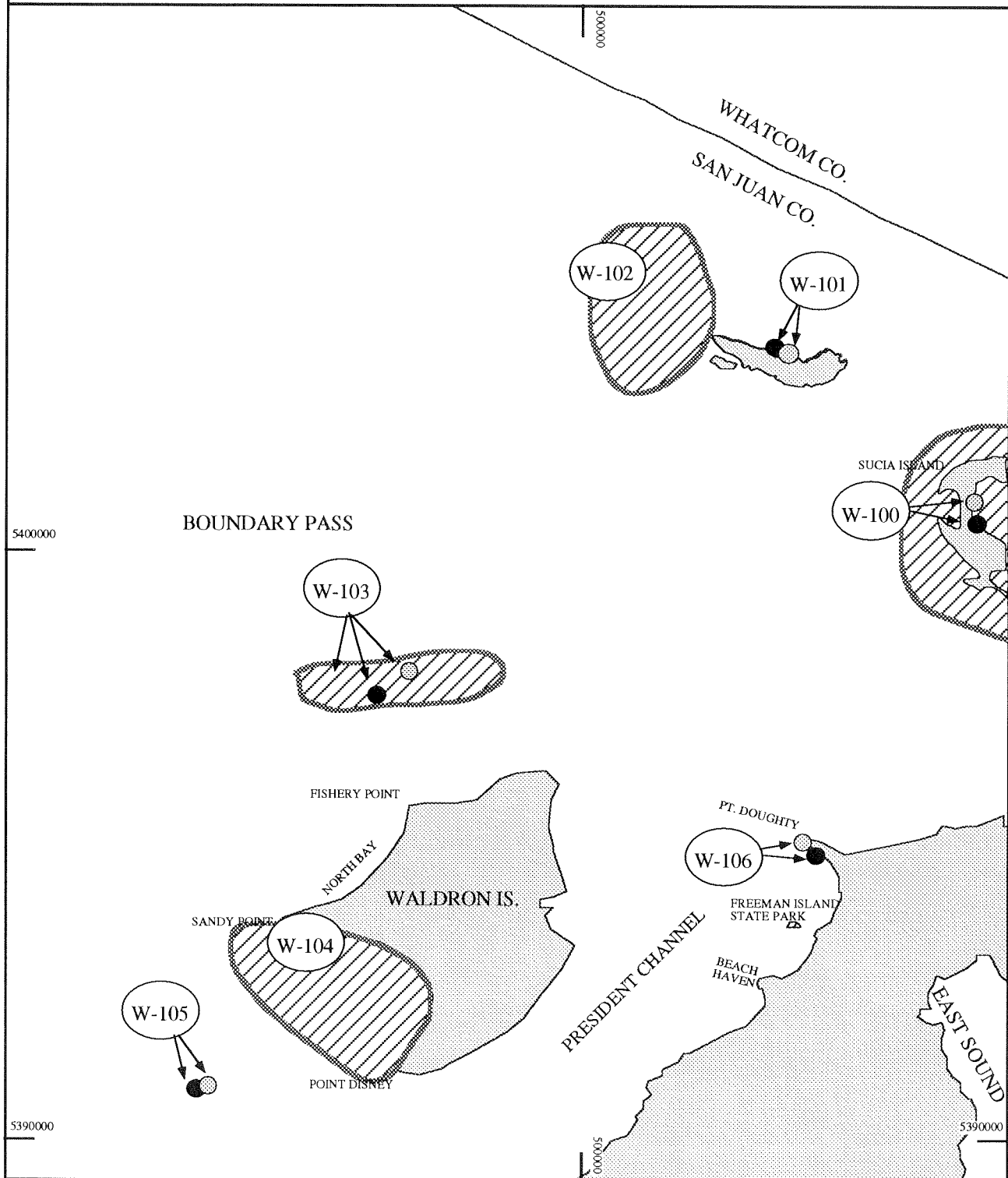
1. Pilots refer to the chapter on Flight Restriction Zones.
2. All ground entry within 100 yards of sensitive nesting species is restricted.
3. All boaters are requested to approach no closer than 100 yards to seal and waterfowl concentrations.

 MARINE MAMMAL HAULOUT
 SENSITIVE SPECIES NESTING
 BOAT LAUNCH

 PARK OR PUBLIC LAND
 RESERVATION
 TOWN OR CITY



BIRD CONCENTRATION AREA



6.6. North Puget Sound/San Juan Island Fish and Shellfish Data**North Puget Sound Geographic Response Plan Workshop****Sensitive Species Information**

The following maps (draft) represent the current knowledge of some of Washington Department of Fisheries' (WDF) trust resources. The maps focus on nearshore resources of high commercial, recreational, or ecological value. Adult and juvenile life stages of a number of ecologically and economically important species including salmon, marine fish, baitfish, and shellfish as well as the plankton community are considered to be ubiquitous in distribution and therefore, are not displayed on maps. Pertinent information on many of these species can be found in the habitat association and timing tables which include information on temporal and spatial distribution, preferred habitat, and relative abundance of various life history stages. This information must be considered in resource protection and damage assessments efforts.

Additional areas of resource occurrence are continually being documented. The extent of intertidal spawning habitat represented in the baitfish maps for surf smelt and Pacific sand lance is updated annually as new spawning areas are documented.

The shellfish maps do not offer complete information on intertidal and subtidal shellfish resources. Surveys run by WDF have been oriented to locating beds that could be commercially harvested. Many intertidal areas are privately owned tidelands upon which WDF has not undertaken a comprehensive inventory of the naturally produced or cultured shellfish resources. No attempt has been made on these maps to differentiate between areas which have not been surveyed and those in which shellfish were not found in commercial quantities.

Due to a combination of new data and incomplete data it is not safe to assume that blank areas on the maps are not of concern. If you have any questions regarding this information please contact the WDF Spill Response and Damage Prevention Unit at 206-902-2570.

Draft -

June 14, 1993

**North Puget Sound Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Pacific Salmon

Resource Information Mapped: Anadromous streams and rivers utilized by one or more of the following species for spawning and rearing: chinook (*Oncorhynchus tshawytscha*), coho (*O. kisutch*), sockeye (*O. nerka*), chum (*O. keta*), and pink (*O. gorbuscha*).

Resource Use: Human; extensive commercial and recreational fisheries. Non-human; the list of predators on the various life history stages of salmon is extensive and includes several species of birds (bald eagle), fish, marine mammals, and terrestrial mammals.

General Location or Habitat Association of Resource: Salmon spawn and rear in all major Washington watersheds and in many of the smaller tributaries. Salmon are anadromous in that they begin life in fresh water, spend the largest portion of their life in salt water, then return to fresh water to spawn. There is a broad range of life history types both between and within the species. Both juvenile and adult salmon are present year round throughout this region.

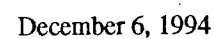
Seasonal Sensitivity: Varies with species, stock, and river system. See habitat association and timing table.

Recommended Protection Strategy: In the estuaries contain and recover oil in the main channels as close to the entrances as possible or divert to shore based recovery points. Keep oil off of the intertidal flats. Where oil cannot be excluded from the beach use clean up techniques which do not force oil into beach substratum or transport it into the lower intertidal or subtidal zones. Along the coast boom the river and stream mouths.

Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit

References:

- Emmett, R.L., S.L. Stone, S.A. Hinton, and M.E. Monaco. 1991. Distribution and abundance of fishes and invertebrates in west coast estuaries; Volume II: species life history summaries. ELMR Rep. No. 8. NOAA/NOS Strategic Environmental Assessments Division, Rockville, MD, 329 p.
- Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.



Draft -

June 14, 1993

**North Puget Sound Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Rockfish (Sebastes spp.)

Resource Information Mapped: Critical juvenile (young-of-the-year) rockfish habitat.

Resource Use: Human - rockfish are an important commercial and recreational species complex. Non-human - Rockfish are utilized as food organisms by various marine fish species including lingcod and by marine mammals.

General Location or Habitat Association of Resource: High densities of juvenile rockfish are found in nearshore eelgrass and kelp beds. In kelp beds fish are often found within 50 cm of the surface. These habitats are critical to their survival, providing protective cover as well as food. All the eelgrass and kelp beds within the region may provide juvenile habitat. Areas of particular interest include the mixed eelgrass and kelp (*Laminaria* sp.) beds in Short Bay and Alice Bight on Burrows Island and along the north shore of Young Island.

Seasonal Sensitivity: High densities of juvenile rockfish are found in the eelgrass and kelp beds from June through September.

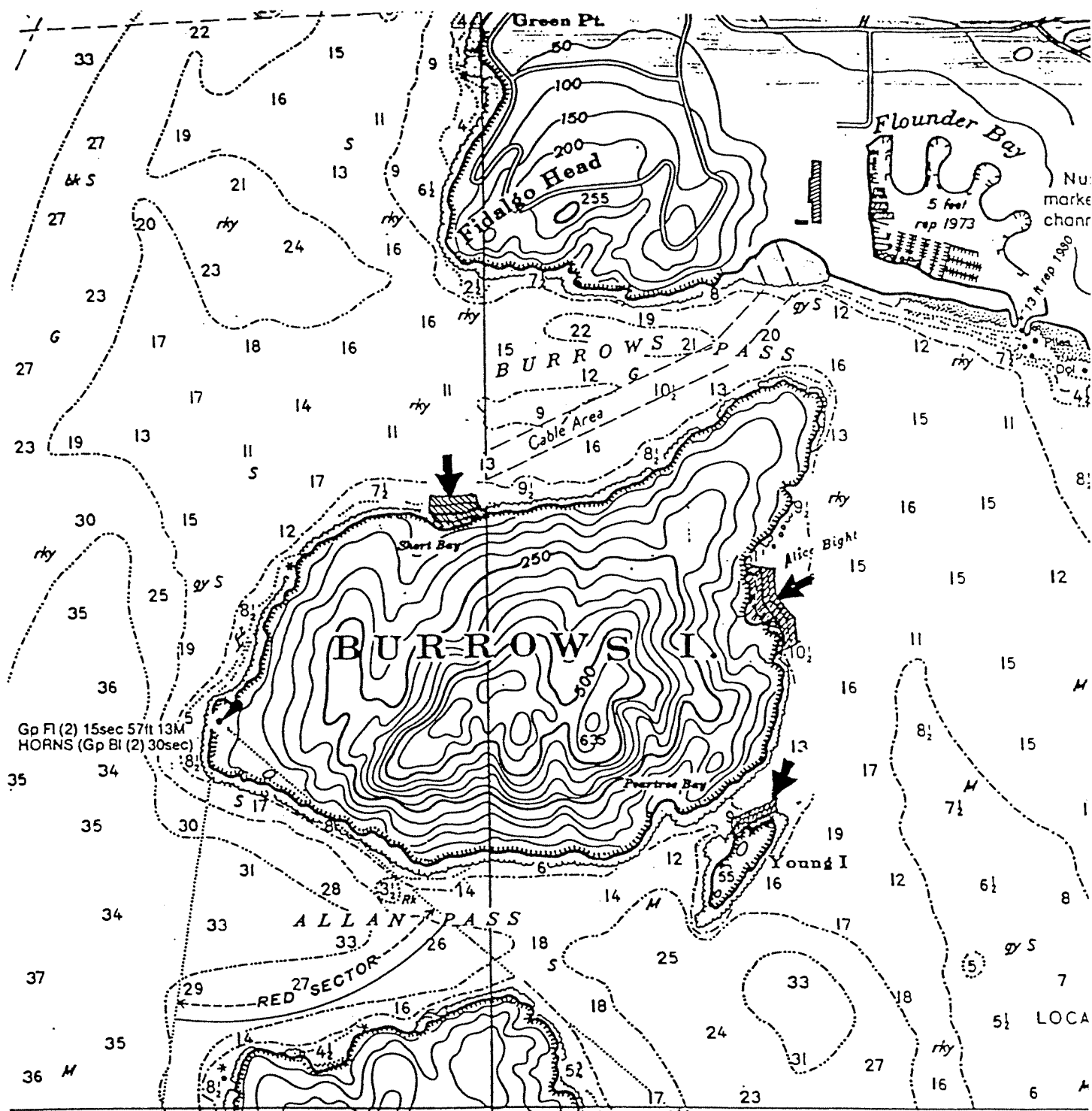
Recommended Protection Strategy: Prevent oil from entering or penetrating into the kelp and eelgrass beds. The beds mentioned above are a high priority for protection. They are small enough that exclusion or deflection booming may protect them.

Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit and Marine Habitat Investigations Unit

References:

Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

North Puget Sound Fish Resources



Juvenile Rockfish Rearing



Source: Washington Department of Fisheries

This map does not offer complete information on fish and shellfish resource distribution. Comprehensive inventories have not been completed along all shorelines

June 14, 1993

**Northern Puget Sound Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Pacific Herring (*Clupea harengus pallasii*)

Resource Information Mapped: Adult prespawning holding areas and spawning areas.

Resource Use: Human; Strait of Georgia sac-roe and roe-on-kelp fisheries, sport bait fishery targets juvenile fish. Non-human; one of the most important components of the marine food chain; they provide the link between primary production and upper level predators. All life history stages utilized as food by various predators including salmon, rockfish, lingcod, halibut, birds, marine mammals, etc.

General Location or Habitat Association: Adult prespawning holding areas are located in the Strait of Georgia, Bellingham Bay, Samish Bay and Padilla Bay. Fish are found in pelagic schools. In this region herring spawning occurs at Point Roberts, continuously from Drayton Harbor south to Lummi Bay, Hale Pass, Samish Bay, northern Padilla Bay, and Fidalgo Bay. Herring deposit their eggs on marine vegetation, such as eel grass or algae, within the shallow subtidal and intertidal zones.

Seasonal Sensitivity or Occurrence: Adult herring congregate in relatively distinct areas during December through June prior to spawning. Exposure of pre-spawning adults to oil can result in the accumulation of hydrocarbon compounds in the yolk of maturing eggs. Metabolism of these compounds during embryonic and larval stages can result in lethal and sublethal genetic, cellular and morphological injuries. Spawning occurs from February through mid-June in the Strait of Georgia, February through mid-April in Samish, Padilla and Fidalgo Bays. Eggs hatch after approximately 10 days. Larvae and subsequent juvenile fish are found in nearshore areas throughout the following summer. Eggs and larvae are highly susceptible to injury (lethal) from oil exposure.

Recommended Protection Strategy: Boom off Drayton Harbor, and southern Fidalgo Bay. Utilize open water collection techniques to keep oil off of the spawning substrate throughout the region.

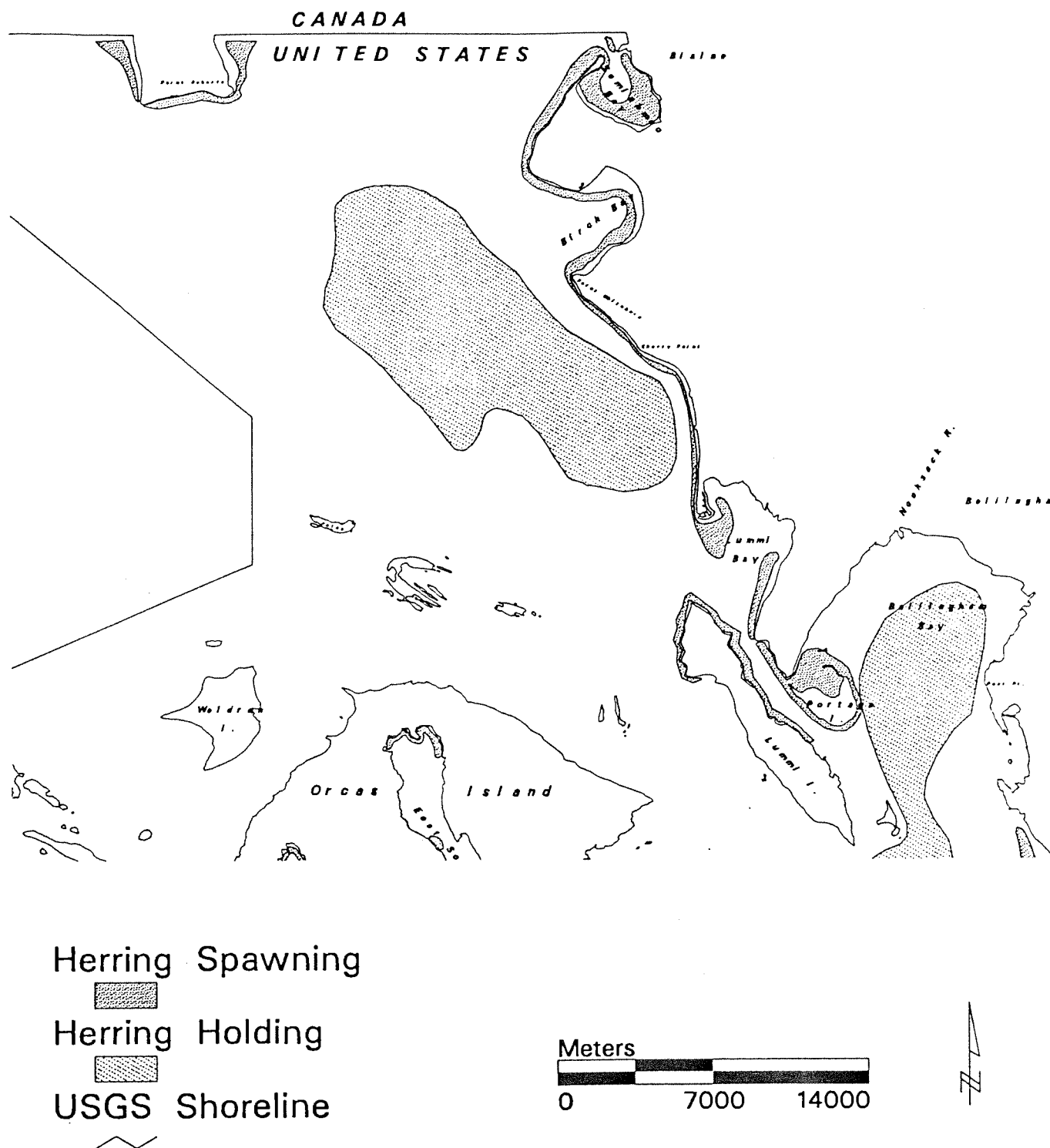
Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit

References:

Emmett, R.L., S.L. Stone, S.A. Hinton, and M.E. Monaco. 1991. Distribution and abundance of fishes and invertebrates in west coast estuaries; Volume II: species life history summaries. ELMR Rep. No. 8. NOAA/NOS Strategic Environmental Assessments Division, Rockville, MD, 329 p.

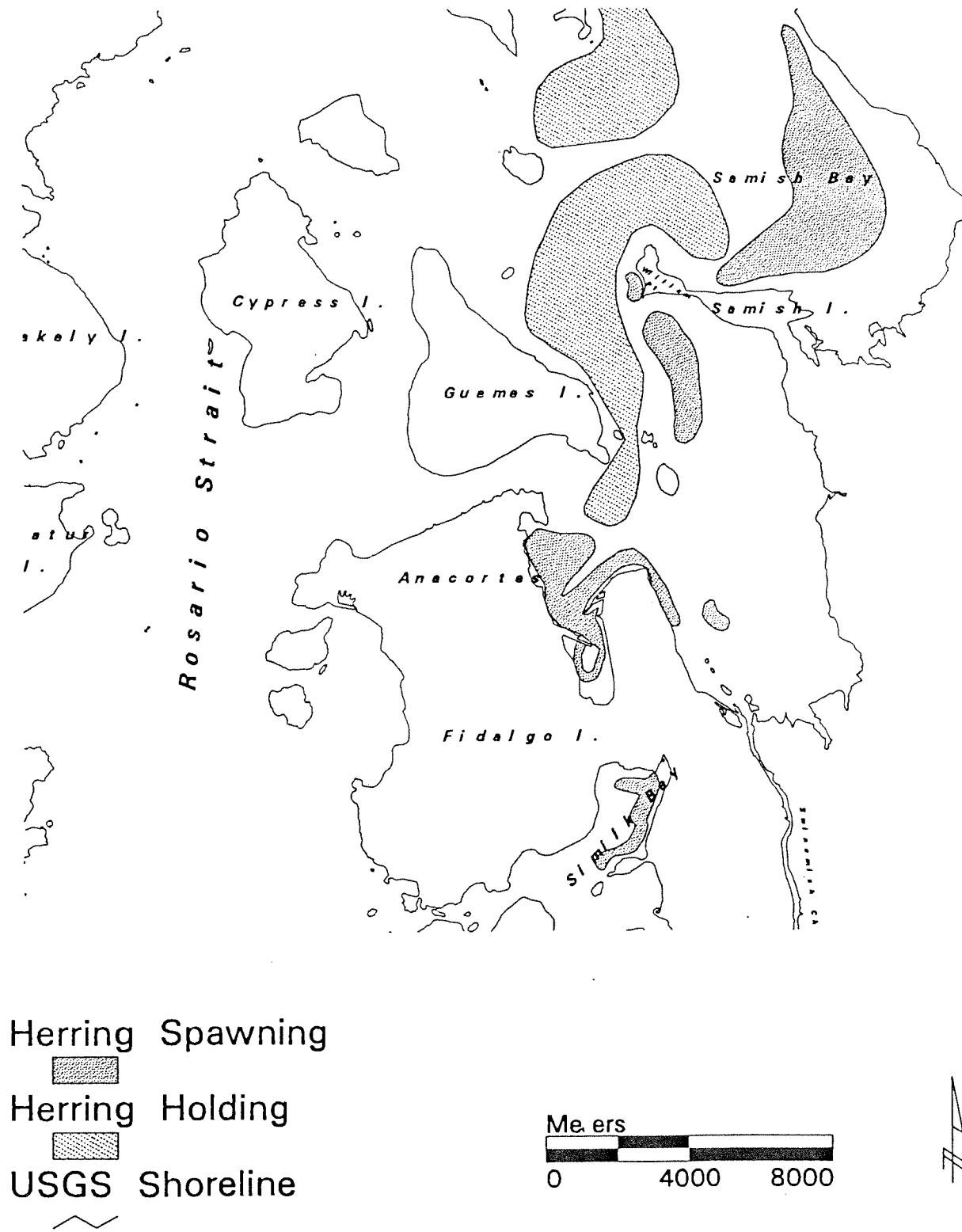
Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

North Puget Sound Baitfish Resources Whatcom County



Source: Washington Department of Fisheries
This map does not offer complete information on the distribution of fish and shellfish resources.
Comprehensive inventories have not been completed in all areas.

North Puget Sound Baitfish Resources Skagit County



Source: Washington Department of Fisheries
This map does not offer complete information on the distribution of fish and shellfish resources.
Comprehensive inventories have not been completed in all areas.

Draft -

June 14, 1993

**North Puget Sound Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Surf Smelt (*Hypomesus pretiosus*)

Resource Information Mapped: Intertidal surf smelt spawning areas.

Resource Use: Human - commercial and recreational harvest. Non-human - important component of the marine food chain; smelt provide the link between primary production and upper level predators. All life history stages are utilized as food by various predators including salmon, rockfish, lingcod, halibut, birds, marine mammals, etc.

General Location of Sensitive Resource: Surf smelt deposit their eggs in the uppermost intertidal zone on gravel generally having a grain size from 1 to 7 mm. Incubation takes 2 - 4 weeks. Larvae are found in adjacent nearshore surface waters for several weeks following hatching. Spawning areas exist from Drayton Harbor south to Birch Bay Marina, Cherry Point to Neptune Beach, Samish Island and Fidalgo Bay. Other undocumented spawning areas are suspected in the region.

Seasonal Sensitivity or Occurrence: Surf smelt spawning in the Birch and Cherry Point area occurs from June through September. Spawning occurs in Fidalgo Bay from October through March and possibly year around. Eggs and larvae are highly susceptible to injury (lethal) from oil exposure.

Recommended Protection Strategy: Keep oil off of spawning beaches regardless of season. Utilize protective booming where possible (Fidalgo Bay) and aggressive open water collection techniques elsewhere.

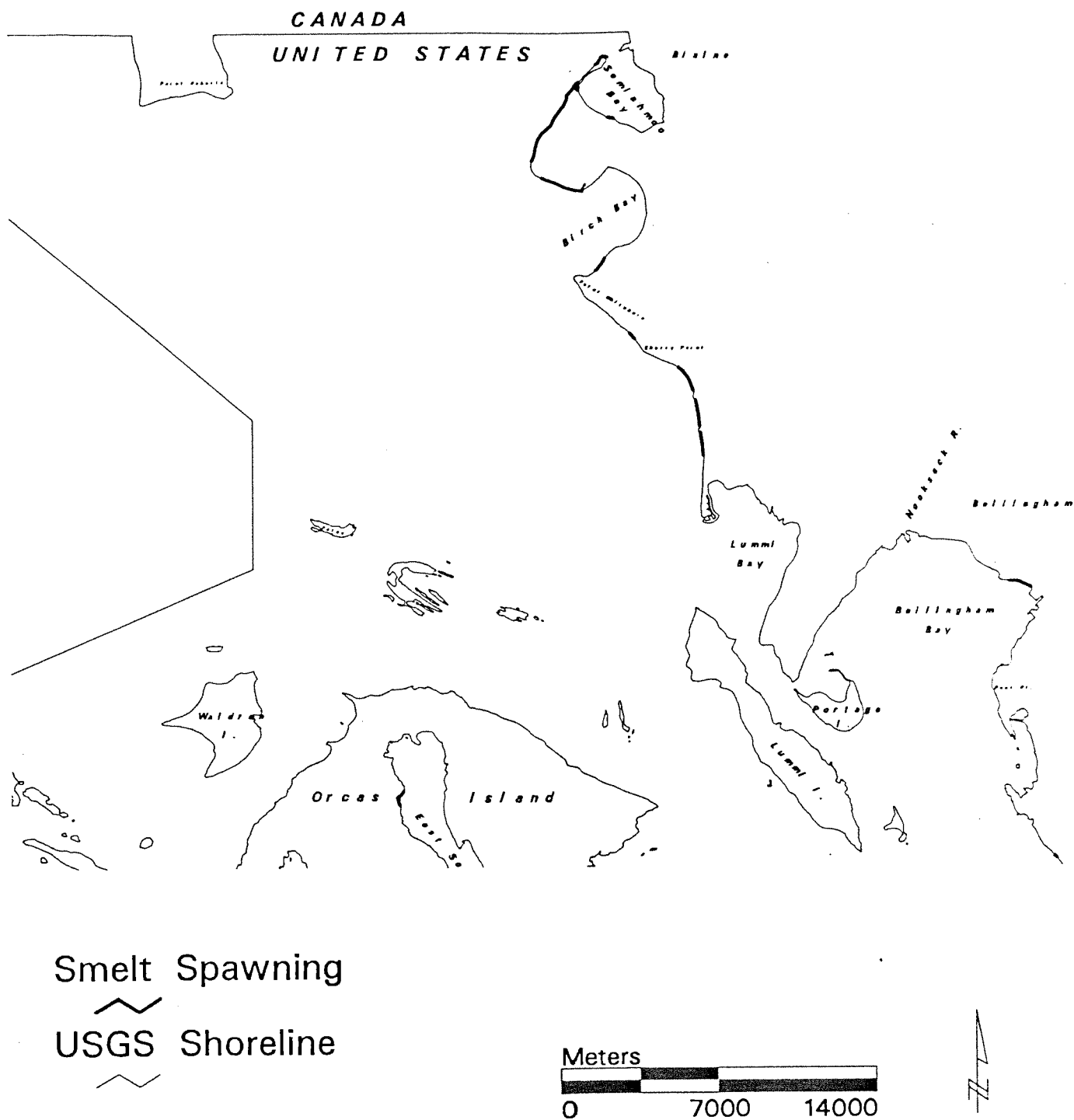
Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit

References:

Emmett, R.L., S.L. Stone, S.A. Hinton, and M.E. Monaco. 1991. Distribution and abundance of fishes and invertebrates in west coast estuaries; Volume II: species life history summaries. ELMR Rep. No. 8. NOAA/NOS Strategic Environmental Assessments Division, Rockville, MD, 329 p.

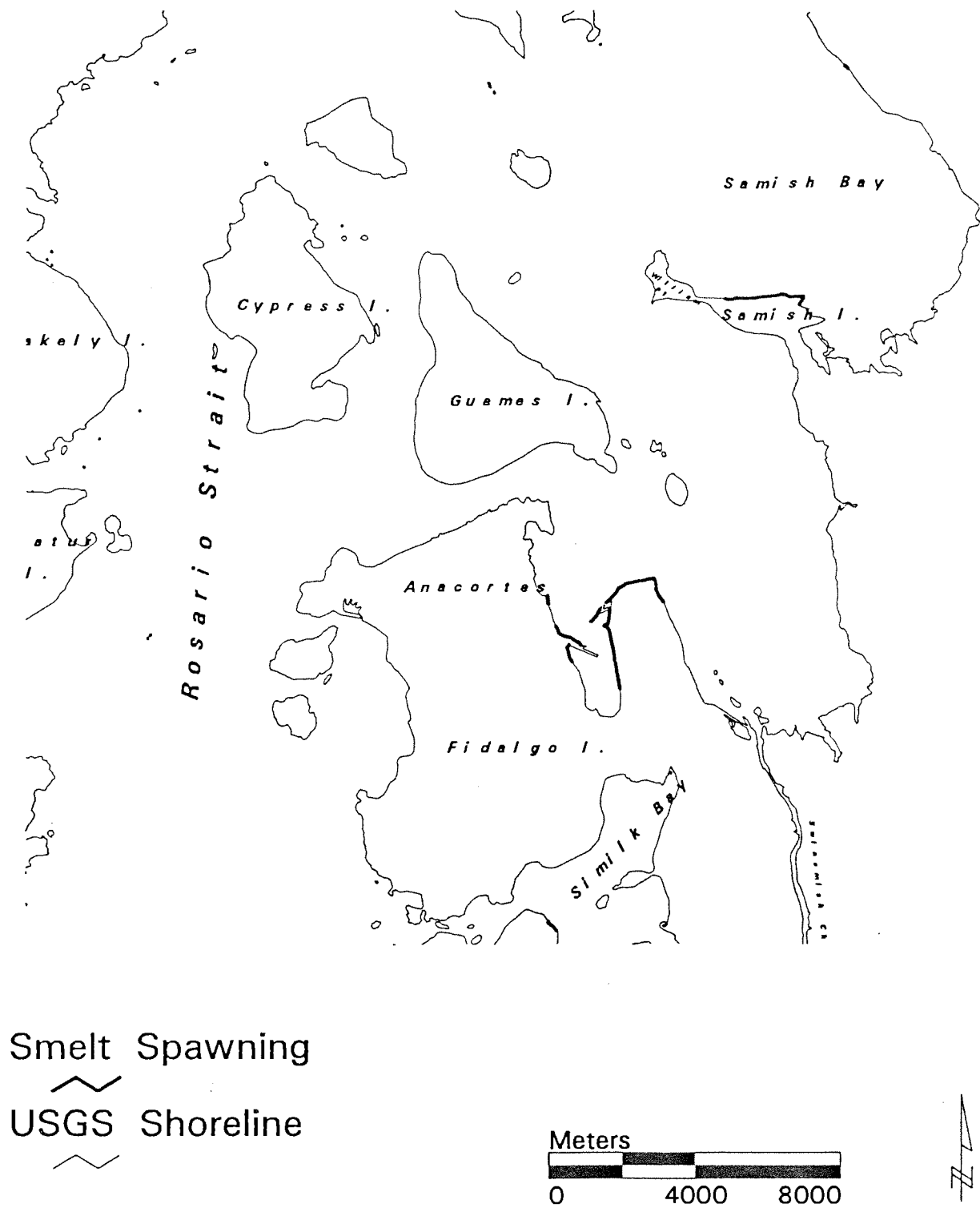
Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

North Puget Sound Baitfish Resources Whatcom County



Source: Washington Department of Fisheries
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Comprehensive inventories have not been completed in all areas.

North Puget Sound Baitfish Resources Skagit County



Source: Washington Department of Fisheries
This map does not offer complete information on the distribution of fish and shellfish resources.
Comprehensive inventories have not been completed in all areas.

Draft -

June 14, 1993

**North Puget Sound Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Pacific Sand Lance (*Ammodytes hexapterus*)

Resource Information Mapped: Documented intertidal spawning areas and larval rearing areas.

Resource Use: Human - sand lance are used as bait by recreation fishers. Non-human - important component of the marine food chain; sand lance provide the link between primary production and upper level predators. All life history stages are utilized as food by various predators including salmon, rockfish, lingcod, halibut, birds, marine mammals, etc.

General Location or Habitat Association of Resource: Pacific sand lance spawn from November through February and deposit their eggs on upper intertidal sandy-gravel beaches. Documented spawning areas in the region include the east shore of Point Roberts, Drayton Harbor, Gooseberry Point, Samish Bay, Samish Island and Padilla Bay. Sand lance larvae are widespread in the regions near-surface waters from January through March. It is suspected that additional spawning and larval habitat exists within the region. Adult sand lance are found in nearshore habitats throughout the region.

Seasonal Sensitivity: The highest sensitivity is during the spawning and larval stages from October through March. Eggs and larvae are highly susceptible to injury (lethal) from oil exposure.

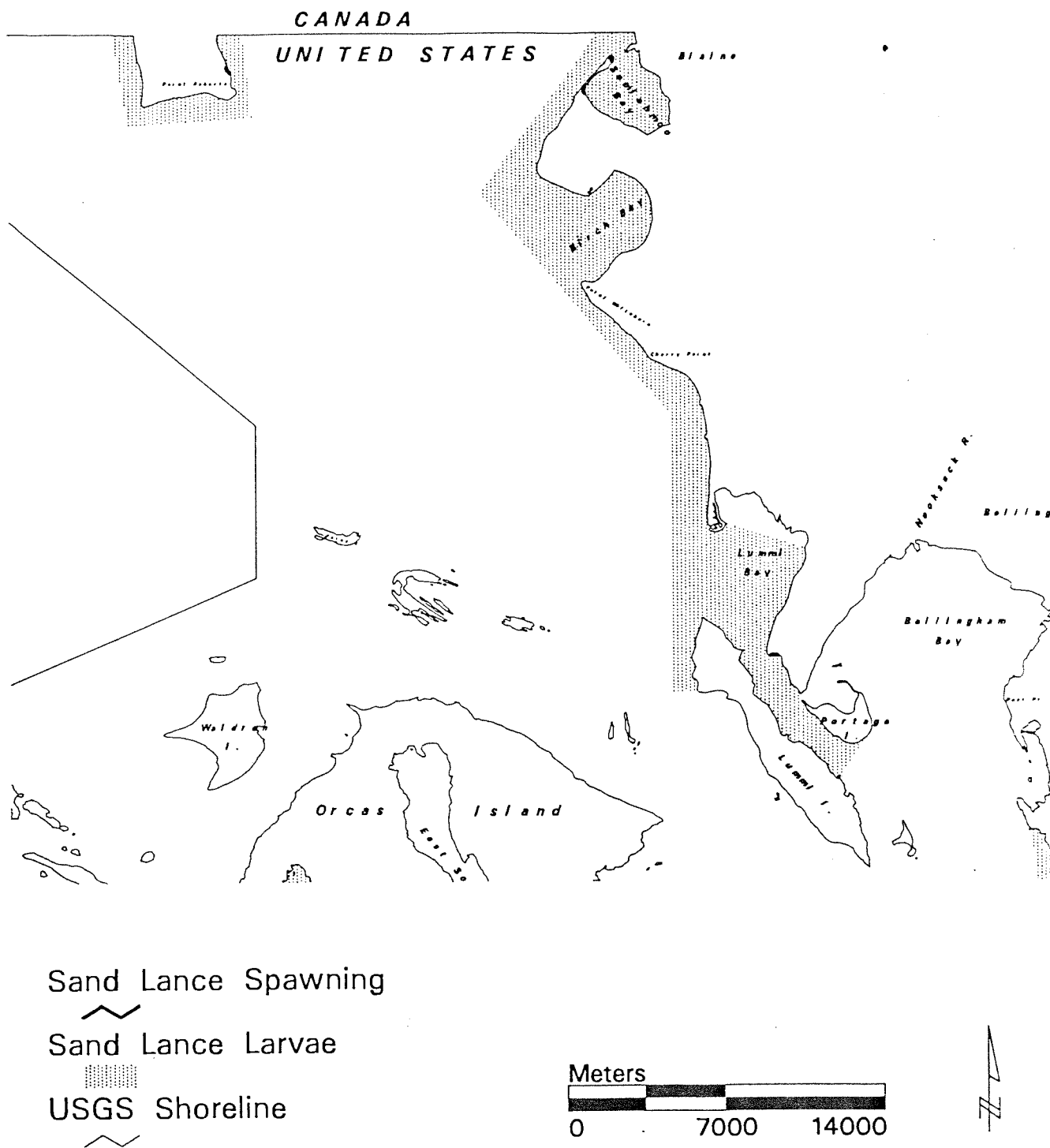
Recommended Protection Strategy: Keep oil off of spawning beaches regardless of season. Utilize protective booming where possible (Drayton Harbor) and aggressive open water collection techniques elsewhere.

Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit

References:

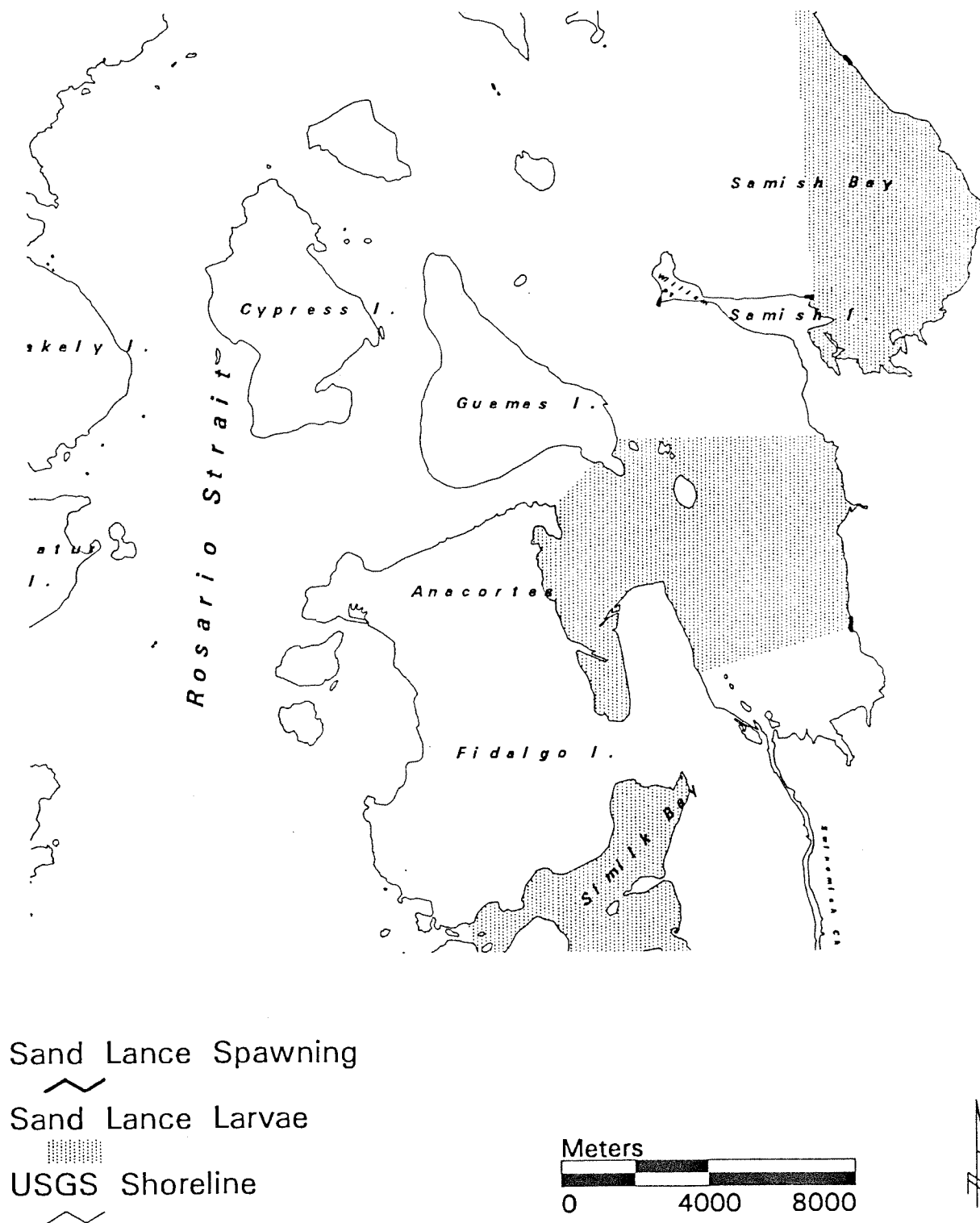
- Emmett, R.L., S.L. Stone, S.A. Hinton, and M.E. Monaco. 1991. Distribution and abundance of fishes and invertebrates in west coast estuaries; Volume II: species life history summaries. ELMR Rep. No. 8. NOAA/NOS Strategic Environmental Assessments Division, Rockville, MD, 329 p.
- Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

North Puget Sound Baitfish Resources Whatcom County



Source: Washington Department of Fisheries
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Comprehensive inventories have not been completed in all areas.

North Puget Sound Baitfish Resources Skagit County



Source: Washington Department of Fisheries
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Comprehensive inventories have not been completed in all areas.

Draft -

June 14, 1993

**North Puget Sound Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Cancer Crab

Resource Information Mapped: Dungeness (*Cancer magister*) and red rock (*C. productus*) crab distribution. Map depicts primarily adults but does cover some juvenile areas. Important juvenile habitat will correlate with the herring spawning (eelgrass) and oyster areas (see appropriate maps).

Resource Use: Human - large commercial and recreational harvest. Non-human - all life history phases are utilized as food by numerous fish species (eg. Pacific herring, lingcod, rockfish, coho and chinook salmon, halibut, English sole and cabezon), octopus, sea otters, harbor seals, sea lions, and gulls.

General Location or Habitat Association of Resource: Cancer crab are found throughout the region. Adults are found from the intertidal to -90 m MLLW and prefer sandy substrates. Juveniles are found intertidally and typically associated with eelgrass, ulva, bivalve shells, or some form of cover, from +3 to -15 m MLLW. Larvae and megalopae are planktonic. Megalopae are typically found in nearshore waters where they settle to the bottom and metamorphose into juveniles during summer. Females carry incubating eggs beginning in the fall and hatching occurs between February and April.

Seasonal Sensitivity: Larvae/megalopae - planktonic - March through July. Juveniles - epibenthic intertidal - year-round.

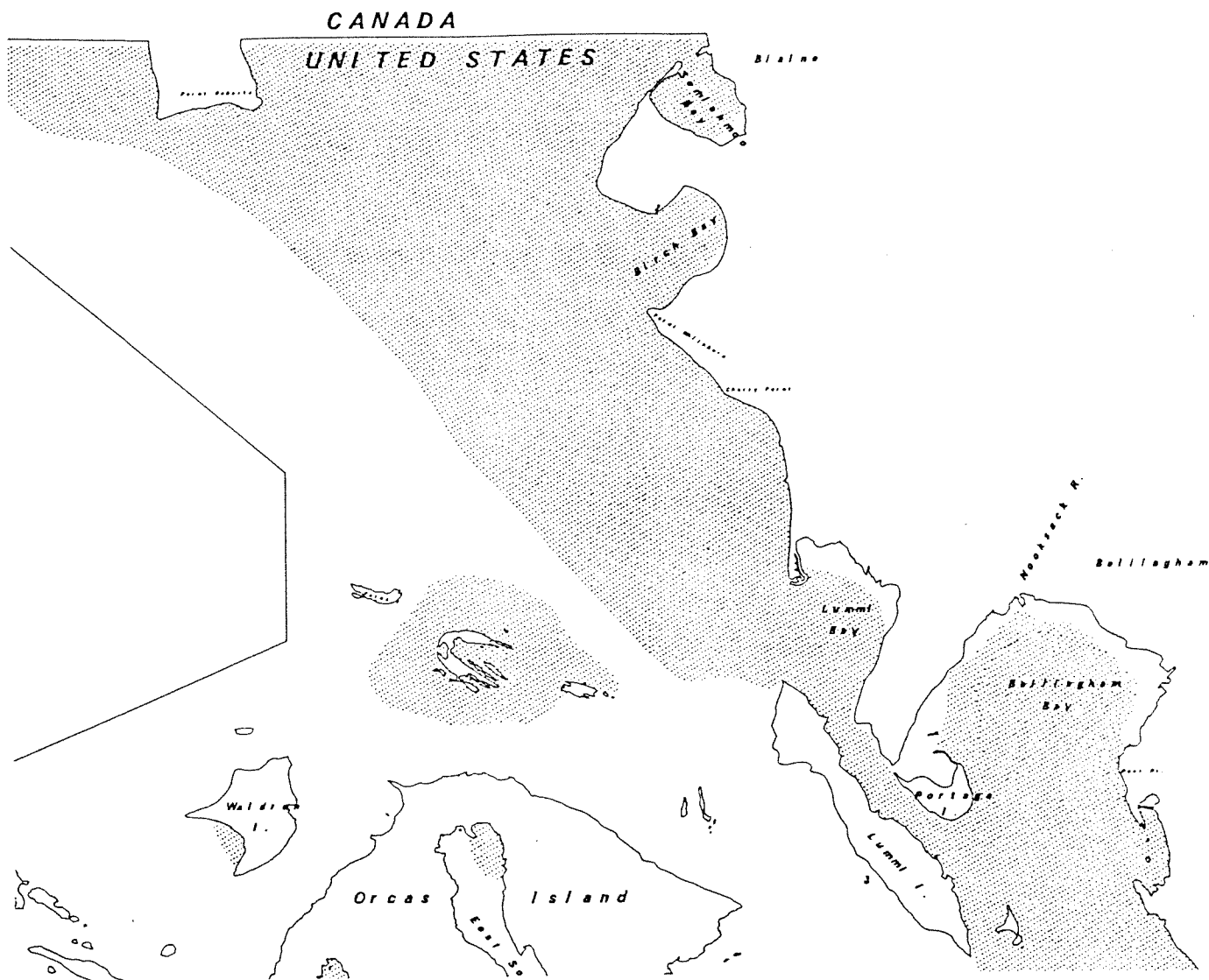
Recommended Protection Strategy: Protect nearshore juvenile habitat, particularly eelgrass beds. Utilize protective booming where possible (Drayton Harbor and Fidalgo Bay) and aggressive open water collection techniques elsewhere.

Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit

References:

- Emmett, R.L., S.L. Stone, S.A. Hinton, and M.E. Monaco. 1991. Distribution and abundance of fishes and invertebrates in west coast estuaries; Volume II: species life history summaries. ELMR Rep. No. 8. NOAA/NOS Strategic Environmental Assessments Division, Rockville, MD, 329 p.
- Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

North Puget Sound Shellfish Resources Whatcom County



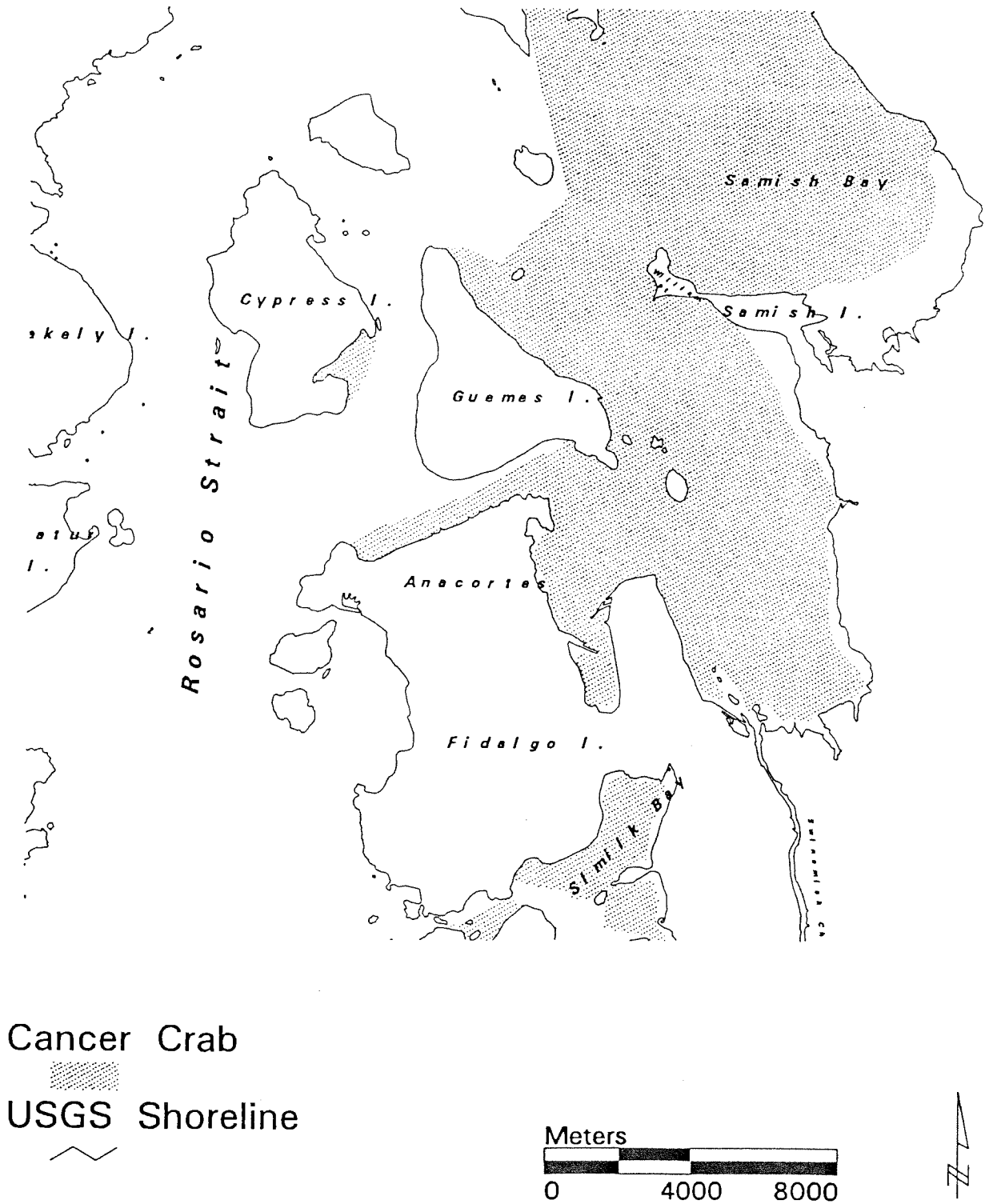
Cancer Crab

USGS Shoreline

Meters
0 7000 14000

Source: Washington Department of Fisheries
This map does not offer complete information on the distribution of fish and shellfish resources.
Comprehensive inventories have not been completed in all areas.

North Puget Sound Shellfish Resources Skagit County



Source: Washington Department of Fisheries
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Comprehensive inventories have not been completed in all areas.

June 14, 1993

North Puget Sound Geographic Response Plan Workshop Data Recording Sheet

Resource: Intertidal and subtidal hardshell clams, and intertidal softshell clams.

Resource Information Mapped: Hardshell intertidal include the native littleneck (*Protothaca staminea*), the Manila littleneck (*Tapes philippinarum*), butter clams (*Saxidomus giganteus*), piddock clams (*Zirfaea pilsbryi*), and horse clams (*Tresus capax* and *T. nuttallii*), and cockles (*Clinocardium nuttalli*). Subtidal includes butter clams, piddock clams and horse clams. Softshell intertidal includes only the eastern softshell clam (*Mya arenaria*).

Resource Use: Human; commercial and recreational harvest. Non human; as a group clams are feed upon by a wide variety of organisms including snails, sea stars, Dungeness and rock crabs, several species of commercially and recreationally import fish, sea otters, raccoons, scoters and other birds.

General Location or Habitat Association of Resource: Clams are found throughout the region with higher concentrations in Point Roberts, Tongue Point south to Point Whitehorn, Portage Island area, east Guemes Island, and March Point. Clams are found from approximately +2 m MLLW in the intertidal zone to subtidal depths of -21 m MLLW.

Seasonal Sensitivity: Due to their sessile lifestyle in the intertidal zone clams are at high risk of exposure throughout the year. Sensitivity would be elevated during the spawning and larval period which can extend from April through October.

Recommended Protection Strategy: Utilize protective booming where possible (Drayton Harbor) and aggressive open water collection techniques elsewhere. Where oil cannot be excluded from the beach use clean up techniques which do not force oil into beach substratum.

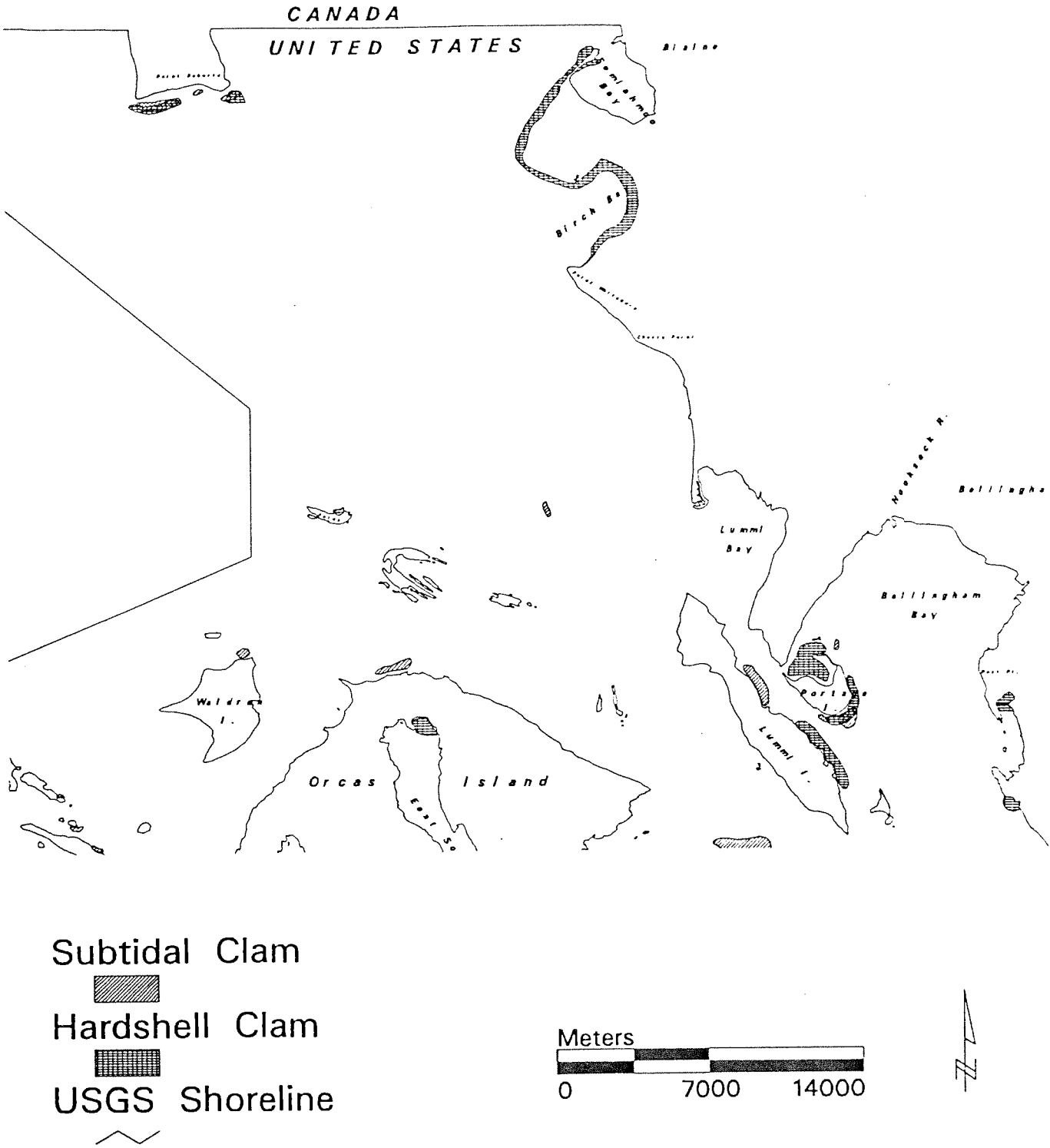
Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit

References:

Emmett, R.L., S.L. Stone, S.A. Hinton, and M.E. Monaco. 1991. Distribution and abundance of fishes and invertebrates in west coast estuaries; Volume II: species life history summaries. ELMR Rep. No. 8. NOAA/NOS Strategic Environmental Assessments Division, Rockville, MD, 329 p.

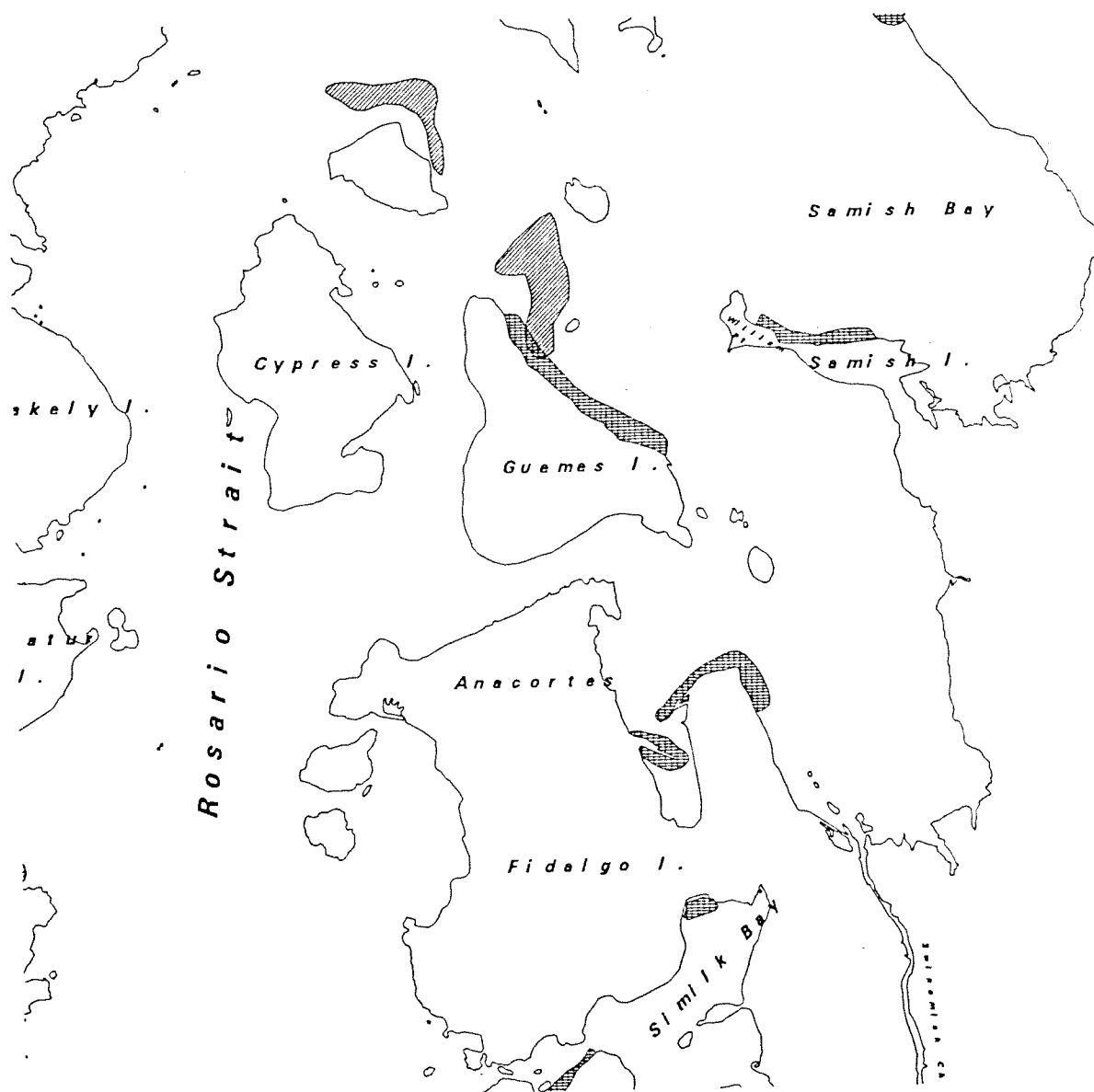
Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.




North Puget Sound Shellfish Resources Whatcom County



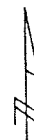
Source: Washington Department of Fisheries
This map does not offer complete information on the distribution of fish and shellfish resources.
Comprehensive inventories have not been completed in all areas.

North Puget Sound Shellfish Resources Skagit County



Subtidal Clam

 Hardshell Clam

 USGS Shoreline


Meters
 0 4000 8000



Source: Washington Department of Fisheries
 This map does not offer complete information on the distribution of fish and shellfish resources.
 Comprehensive inventories have not been completed in all areas.

Draft -

June 14, 1993

**North Puget Sound Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Pacific Oyster (*Crassostrea gigas*)

Resource Information Mapped: Oyster beds, primarily cultured.

Resource Use: Human - recreational and commercial harvest.
Non-human - Oyster beds provide important habitat for juvenile dungeness crab. Juvenile and adult oysters are preyed upon by dungeness and red rock crab, several starfish species, and surf and white-winged scoters.

General Location or Habitat Association of Resource: Pacific oysters are found in the lower intertidal and shallow subtidal zones in Lummi Bay.

Seasonal Sensitivity: Due to their sessile lifestyle in the intertidal zone oysters are at high risk of exposure throughout the year. Relative to their habitat function for juvenile dungeness crab the most sensitive period would be June through December.

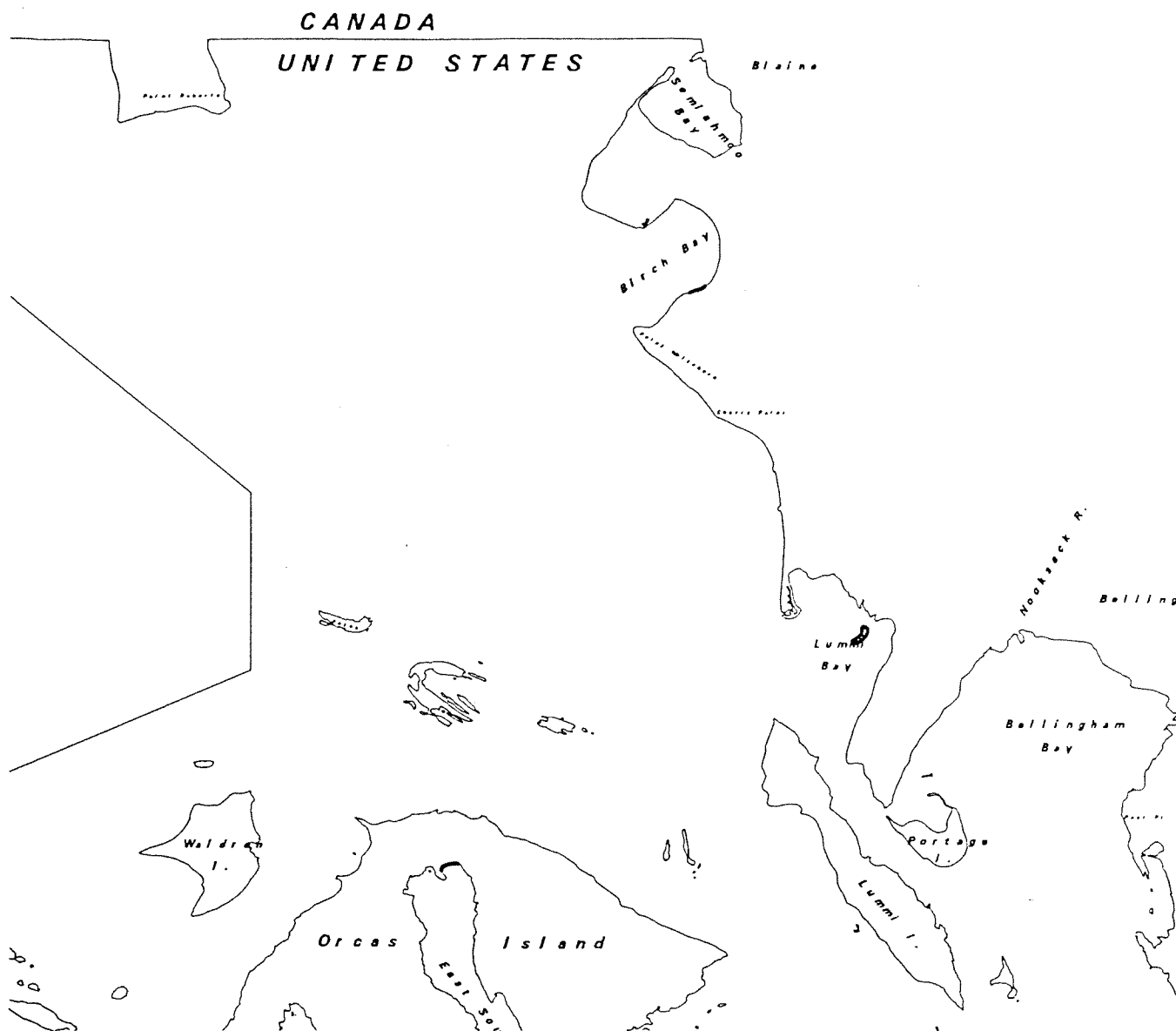
Recommended Protection Strategy: Utilize protective booming where possible and aggressive open water collection techniques elsewhere.



Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit


References:

- Emmett, R.L., S.L. Stone, S.A. Hinton, and M.E. Monaco. 1991. Distribution and abundance of fishes and invertebrates in west coast estuaries; Volume II: species life history summaries. ELMR Rep. No. 8. NOAA/NOS Strategic Environmental Assessments Division, Rockville, MD, 329 p.
- Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

North Puget Sound Shellfish Resources Whatcom County



Oyster

 USGS Shoreline


Meters

 0 6000 12000



Source: Washington Department of Fisheries
 This map does not offer complete information on the distribution of fish and shellfish resources.
 Comprehensive inventories have not been completed in all areas.

Draft -

June 14, 1993

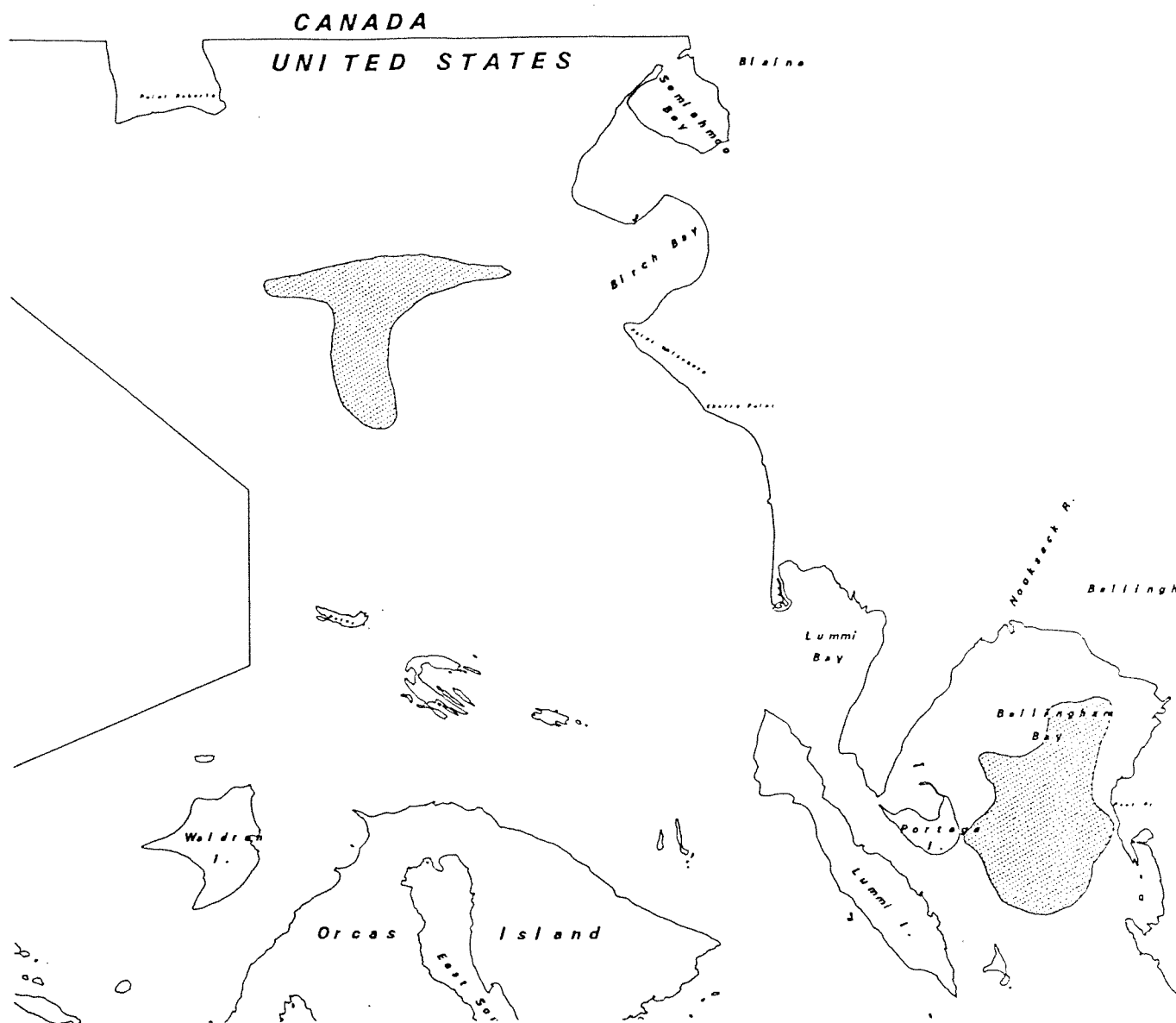
**North Puget Sound Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Pandalid Shrimp**Resource Information Mapped:** Harvest areas for four species of shrimp including; pink (*Pandalus jordani* and *P. borealis*), coonstripe (*P. danae*), and spot prawn (*P. platyceros*).**Resource Use:** Human - commercial and recreational fisheries in the Strait of Georgia, Bellingham Bay, and Burrows Bay. Non-human - food organism for many fish species including rockfish, cabezon, and perch.**General Location or Habitat Association of Resource:** Most harvest occurs in waters 100 to 220 m deep, however, the coonstripe and spot prawn are found as shallow as the lower intertidal zone.**Seasonal Sensitivity:** Planktonic larval phase from February through July.**Recommended Protection Strategy:** Utilize beach clean up techniques that do not transport oil into shallow subtidal area.**Information Recorder:** WDF - Oil Spill Response and Damage Prevention Unit**References:**

Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

Hueckel, G.J. 1980. Foraging on an artificial reef by three Puget Sound fish species. Wa. Dept. Fish. Tech. Rpt. 53. 110 p.

North Puget Sound Shellfish Resources Whatcom County



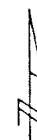
Pandalid Shrimp



USGS Shoreline



Meters



Source: Washington Department of Fisheries
This map does not offer complete information on the distribution of fish and shellfish resources.
Comprehensive inventories have not been completed in all areas.

North Puget Sound Shellfish Resources Skagit County



Pandalid Shrimp
USGS Shoreline

Meters
0 4000 8000

Source: Washington Department of Fisheries
This map does not offer complete information on the distribution of fish and shellfish resources.
Comprehensive inventories have not been completed in all areas.

Draft -

June 14, 1993

**North Puget Sound Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Northern Abalone (*Haliotis kamtschatkana*)

Resource Information Mapped: Documented areas of abalone presence.

Resource Use: Human - recreational fishery only. Non-human - important prey item for sea otters, octopus, and cabezon.

General Location or Habitat Association of Resource: Abalone are found along exposed or semi-exposed bedrock or boulder shorelines from the intertidal zone to depths of 20 m. Within this region they are found around Cypress, Burrows, Allen and Fidalgo Islands.

Seasonal Sensitivity: Adult abalone congregate in the shallow subtidal zone to spawn from April through June. Abalone broadcast eggs and sperm into the water column and fertilized eggs sink to the bottom and hatch within days. Larvae spend 5 to 6 days as free swimmers in the water column. Adults are susceptible to oil exposure via ingestion of contaminated marine algae, particularly kelp. Highest risk of this type of exposure is from April to November.

Recommended Protection Strategy: Prevent oil from contaminating nearshore kelp beds. Utilize beach clean up techniques that do not transport oil into shallow subtidal area.

Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit

References:

Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

North Puget Sound Shellfish Resources Skagit County



Abalone

USGS Shoreline

Meters
0 4000 8000



Source: Washington Department of Fisheries
This map does not offer complete information on the distribution of fish and shellfish resources.
Comprehensive inventories have not been completed in all areas.

Draft -

June 14, 1993

**North Puget Sound Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Sea Urchin

Resource Information Mapped: Commercial quantities of adult sea urchins, primarily the red sea urchin (*Strongylocentrotus franciscanus*).

Resource Use: Human - commercial fishery. Non-human - dominant organism in rocky nearshore communities, responsible for shaping the character of the habitat through their grazing activities. Important prey item for wolf eels and sea otters.

General Location or Habitat Association of Resource: Sea urchins populate the kelp beds off Point Roberts and along the western shorelines of Lummi, Sinclair, Cypress, Guemes, Burrows, Allen, and Fidalgo Islands. Urchins are found from the lower intertidal to depths of 125 m but the highest densities are found at depths less than 30 m. Juveniles are found in adult habitat and require the adults presence to survive.

Seasonal Sensitivity: Spawning occurs during the spring followed by a planktonic larval phase that lasts from 60 to 130 days. Adults are susceptible to oil exposure via ingestion of contaminated marine algae, particularly kelp. Highest risk of this type of exposure is from April to November.

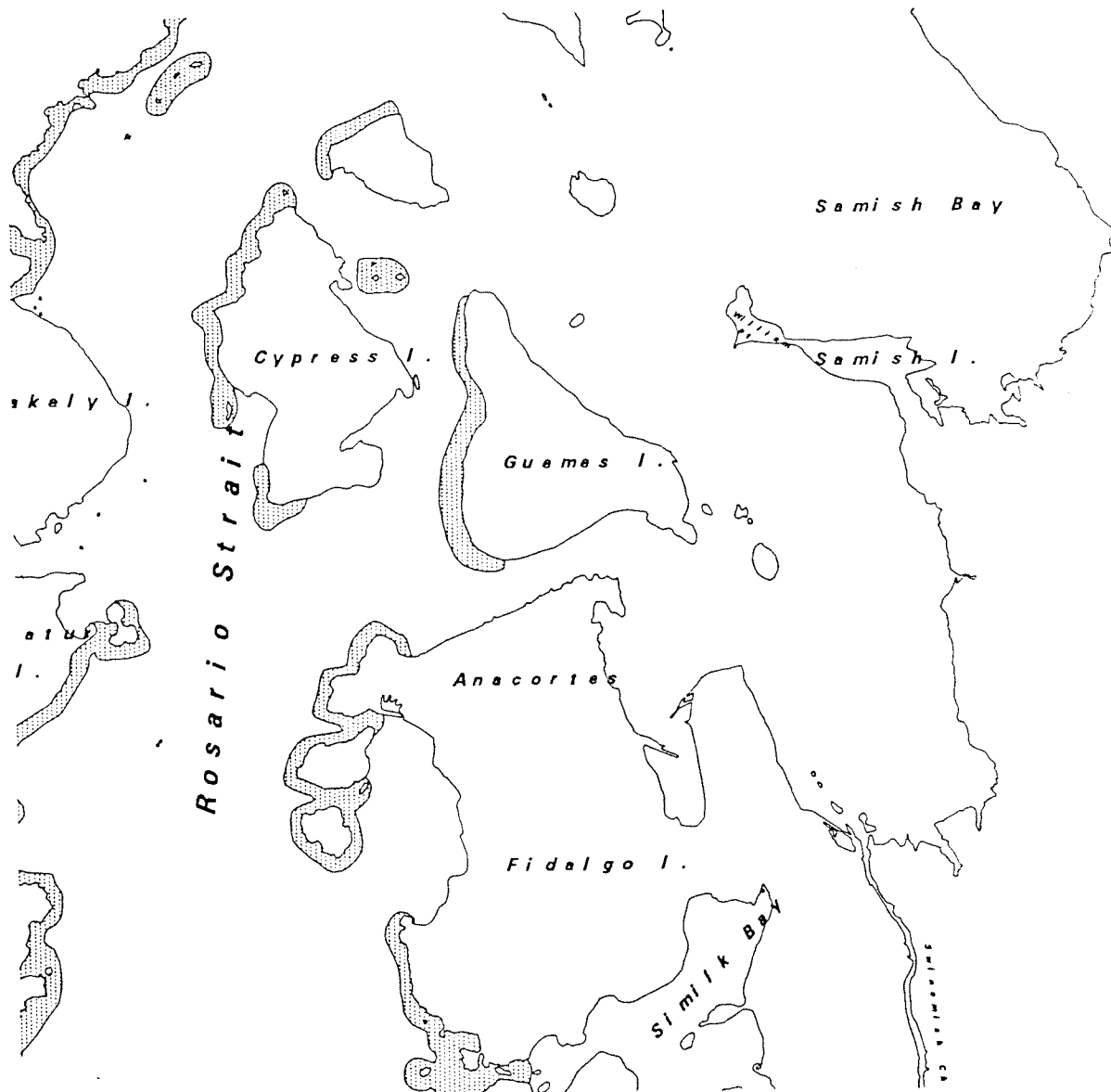
Recommended Protection Strategy: Prevent oil from contaminating nearshore kelp beds. Utilize beach clean up techniques that do not transport oil into shallow subtidal area.

Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit

References:

Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

North Puget Sound Shellfish Resources Skagit County



Urchin



USGS Shoreline



Meters



Source: Washington Department of Fisheries
This map does not offer complete information on the distribution of fish and shellfish resources.
Comprehensive inventories have not been completed in all areas.

Draft - June 16, 1993

**North Puget Sound Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Octopus (*Octopus dofleini*)

Resource Information Mapped: Documented octopus habitat.

Resource Use: Harvested in commercial, recreational, and subsistence fisheries.

General Location or Habitat Association of Resource: Octopus live in caves or dens from the lower intertidal to the subtidal zones.

Seasonal Sensitivity: The portion of the population inhabiting the lower intertidal and shallow subtidal zone would be subject to exposure during extreme low tides throughout the year. Octopus are also susceptible to exposure via contaminated prey, particularly clams and crab.

Recommended Protection Strategy: Utilize beach clean up techniques that do not transport oil into shallow subtidal area.

Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit

References:

Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

Draft - June 16, 1993

**North Puget Sound Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Geoduck Clams (*Panope abrupta*)

Resource Information Mapped: Geoduck clam distribution (commercial quantities).

Resource Use: Human; Geoducks support a large commercial and recreational fisheries. Non human; Geoducks are fed upon by snails, pandalid shrimp, rock crab, English sole, sand sole, rock sole, starry flounder, starfish, and sea otters.

General Location or Habitat Association of Resource: Geoducks are found along the east sides of Lummi and Eliza Islands and inhabit depths from +1 to -110 m MLLW. Preferred substrate is stable mud and sand.

Seasonal Sensitivity: Sensitivity would be highest during the spawning and larval period from April through August (peak May - July).

Recommended Protection Strategy: Utilize beach clean up techniques which do not transport oil into the subtidal zone.

Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit

References:

- Emmett, R.L., S.L. Stone, S.A. Hinton, and M.E. Monaco. 1991. Distribution and abundance of fishes and invertebrates in west coast estuaries; Volume II: species life history summaries. ELMR Rep. No. 8. NOAA/NOS Strategic Environmental Assessments Division, Rockville, MD, 329 p.
- Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

Draft - June 25, 1993

**San Juan Islands Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Pacific Salmon - chinook (*Oncorhynchus tshawytscha*), coho (*O. kisutch*), sockeye (*O. nerka*), chum (*O. keta*), and pink (*O. gorbuscha*).

Resource Information Mapped: None

Resource Use: Human; extensive commercial and recreational fisheries. Non-human; the list of predators on the various life history stages of salmon is extensive and includes several species of birds (bald eagle), fish, marine mammals, and terrestrial mammals.

General Location or Habitat Association of Resource: Salmon spawn and rear in all major Washington watersheds and in many of the smaller tributaries. Salmon are anadromous in that they begin life in fresh water, spend the largest portion of their life in salt water, then return to fresh water to spawn. There is a broad range of life history types both between and within the species. Both juvenile and adult salmon are present year round throughout this region.

Seasonal Sensitivity: Varies with species, stock, and river system. See habitat association and timing table.

Recommended Protection Strategy: In the estuaries contain and recover oil in the main channels as close to the entrances as possible or divert to shore based recovery points. Keep oil off of the intertidal flats. Where oil cannot be excluded from the beach use clean up techniques which do not force oil into beach substratum or transport it into the lower intertidal or subtidal zones. Along the coast boom the river and stream mouths.

Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit

References:

Emmett, R.L., S.L. Stone, S.A. Hinton, and M.E. Monaco. 1991. Distribution and abundance of fishes and invertebrates in west coast estuaries; Volume II: species life history summaries. ELMR Rep. No. 8. NOAA/NOS Strategic Environmental Assessments Division, Rockville, MD, 329 p.

Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

San Juan Islands Baitfish Resources



Source: Washington Department of Fisheries
 This map does not offer complete information on fish and shellfish resource distribution.
 Comprehensive surveys have not been completed in all areas.

Draft - June 7, 1993

**San Juan Islands Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Rockfish (Sebastes spp.)

Resource Information Mapped: Critical juvenile (young-of-the-year) rockfish habitat.

Resource Use: Human - rockfish are an important commercial and recreational species complex. Non-human - Rockfish are utilized as food organisms by various marine fish species including lingcod and by marine mammals.

General Location or Habitat Association of Resource: High densities of juvenile rockfish are found in nearshore eelgrass and kelp beds. In kelp beds fish are often found within 50 cm of the surface. These habitats are critical to their survival, providing protective cover as well as food. All the eelgrass and kelp beds within the region may provide juvenile habitat. Areas of particular interest include the kelp beds along the northern shore of Cliff Island, the south shore of James Island and between Canoe Island Picnic Point.

Seasonal Sensitivity: High densities of juvenile rockfish are found in the eelgrass and kelp beds from June through September.

Recommended Protection Strategy: Prevent oil from entering or penetrating into the kelp and eelgrass beds. The beds mentioned above are a high priority for protection. They are small enough that exclusion or deflection booming may protect them.

Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit and Marine Habitat Investigations Unit

References:

Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

San Juan Islands Fish Resources



Juvenile Rockfish Rearing



Source: Washington Department of Fisheries
This map does not offer complete information on fish and shellfish resource distribution. Comprehensive inventories have not been completed along all shorelines.

Draft - June 7, 1993

**San Juan Island Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Pacific Herring (*Clupea harengus pallasii*)

Resource Information Mapped: Adult prespawning holding areas and spawning areas.

Resource Use: Human; Strait of Georgia sac-roe and roe-on-kelp fisheries, sport bait fishery targets juvenile fish. Non-human; one of the most important components of the marine food chain; they provide the link between primary production and upper level predators. All life history stages utilized as food by various predators including salmon, rockfish, lingcod, halibut, birds, marine mammals, etc.

General Location or Habitat Association: An adult prespawning holding area is located in Harney Channel. Fish are found in pelagic schools. In this region herring spawning occurs in Mud Bay, Hunter Bay, Shoal Bay, Blind Bay, East Sound, West Sound, Westcott Bay, Garrison Bay and Roche Harbor. Herring deposit their eggs on marine vegetation, such as eel grass or algae, within the shallow subtidal and intertidal zones.

Seasonal Sensitivity or Occurrence: Adult herring congregate in relatively distinct areas from December through June prior to and after spawning. Exposure of pre-spawning adults to oil can result in the accumulation of hydrocarbon compounds in the yolk of maturing eggs. Metabolism of these compounds during embryonic and larval stages can result in lethal and sublethal genetic, cellular and morphological injuries. Spawning occurs from January through mid-April in the San Juan Islands. Eggs hatch after approximately 10 days. Larvae and subsequent juvenile fish are found in nearshore areas throughout the following summer. Eggs and larvae are highly susceptible to injury (lethal) from oil exposure.

Recommended Protection Strategy: Utilize booming and aggressive open water collection techniques to keep oil off of the spawning substrate throughout the region.

Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit

References:

Emmett, R.L., S.L. Stone, S.A. Hinton, and M.E. Monaco. 1991. Distribution and abundance of fishes and invertebrates in west coast estuaries; Volume II: species life history summaries. ELMR Rep. No. 8. NOAA/NOS Strategic Environmental Assessments Division, Rockville, MD, 329 p.

Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

San Juan Islands Baitfish Resources

Source: Washington Department of Fisheries
This map does not offer complete information on fish and shellfish resource distribution.
Comprehensive inventories have not been completed in all areas.



Herring Spawning



Herring Holding



USGS Shoreline



Meters



Draft - June 7, 1993

**San Juan Islands Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Surf Smelt (*Hypomesus pretiosus*)

Resource Information Mapped: Intertidal surf smelt spawning areas.

Resource Use: Human - commercial and recreational harvest. Non-human - important component of the marine food chain; smelt provide the link between primary production and upper level predators. All life history stages are utilized as food by various predators including salmon, rockfish, lingcod, halibut, birds, marine mammals, etc.

General Location of Sensitive Resource: Surf smelt deposit their eggs in the uppermost intertidal zone on gravel generally having a grain size from 1 to 7 mm. Incubation takes 2 - 4 weeks. Larvae are found in adjacent nearshore surface waters for several weeks following hatching. Documented spawning areas Hunter Bay, Mud Bay, White Cliff, Thatcher Bay, Shoal Bay, Blind Bay, and East Sound. Other undocumented spawning areas are suspected in the region.

Seasonal Sensitivity or Occurrence: Surf smelt spawning in the San Juans occurs year around. Eggs and larvae are highly susceptible to injury (lethal) from oil exposure.

Recommended Protection Strategy: Keep oil off of spawning beaches regardless of season. Utilize protective booming where possible and aggressive open water collection techniques elsewhere.

Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit

References:

Emmett, R.L., S.L. Stone, S.A. Hinton, and M.E. Monaco. 1991. Distribution and abundance of fishes and invertebrates in west coast estuaries; Volume II: species life history summaries. ELMR Rep. No. 8. NOAA/NOS Strategic Environmental Assessments Division, Rockville, MD, 329 p.

Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

San Juan Islands Baitfish Resources



Source: Washington Department of Fisheries
This map does not offer complete information on fish and shellfish resource distribution.
Comprehensive inventories have not been completed in all areas.

Draft - June 7, 1993

**San Juan Islands Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Pacific Sand Lance (*Ammodytes hexapterus*)

Resource Information Mapped: Documented intertidal spawning areas and larval rearing areas.

Resource Use: Human - sand lance are used as bait by recreation fishers. Non-human - important component of the marine food chain; sand lance provide the link between primary production and upper level predators. All life history stages are utilized as food by various predators including salmon, rockfish, lingcod, halibut, birds, marine mammals, etc.

General Location or Habitat Association of Resource: Pacific sand lance spawn from November through February and deposit their eggs on upper intertidal sandy-gravel beaches. No spawning areas have been documented in the region. However, the presence of sand lance larvae indicates spawning does occur in the region. Sand lance larvae are widespread in the regions near-surface waters from January through March. It is suspected that additional spawning and larval habitat exists within the region. Adult sand lance are found in nearshore habitats throughout the region.

Seasonal Sensitivity: The highest sensitivity is during the spawning and larval stages from October through March. Eggs and larvae are highly susceptible to injury (lethal) from oil exposure.

Recommended Protection Strategy: Keep oil off of spawning beaches regardless of season. Utilize protective booming where possible and aggressive open water collection techniques elsewhere.

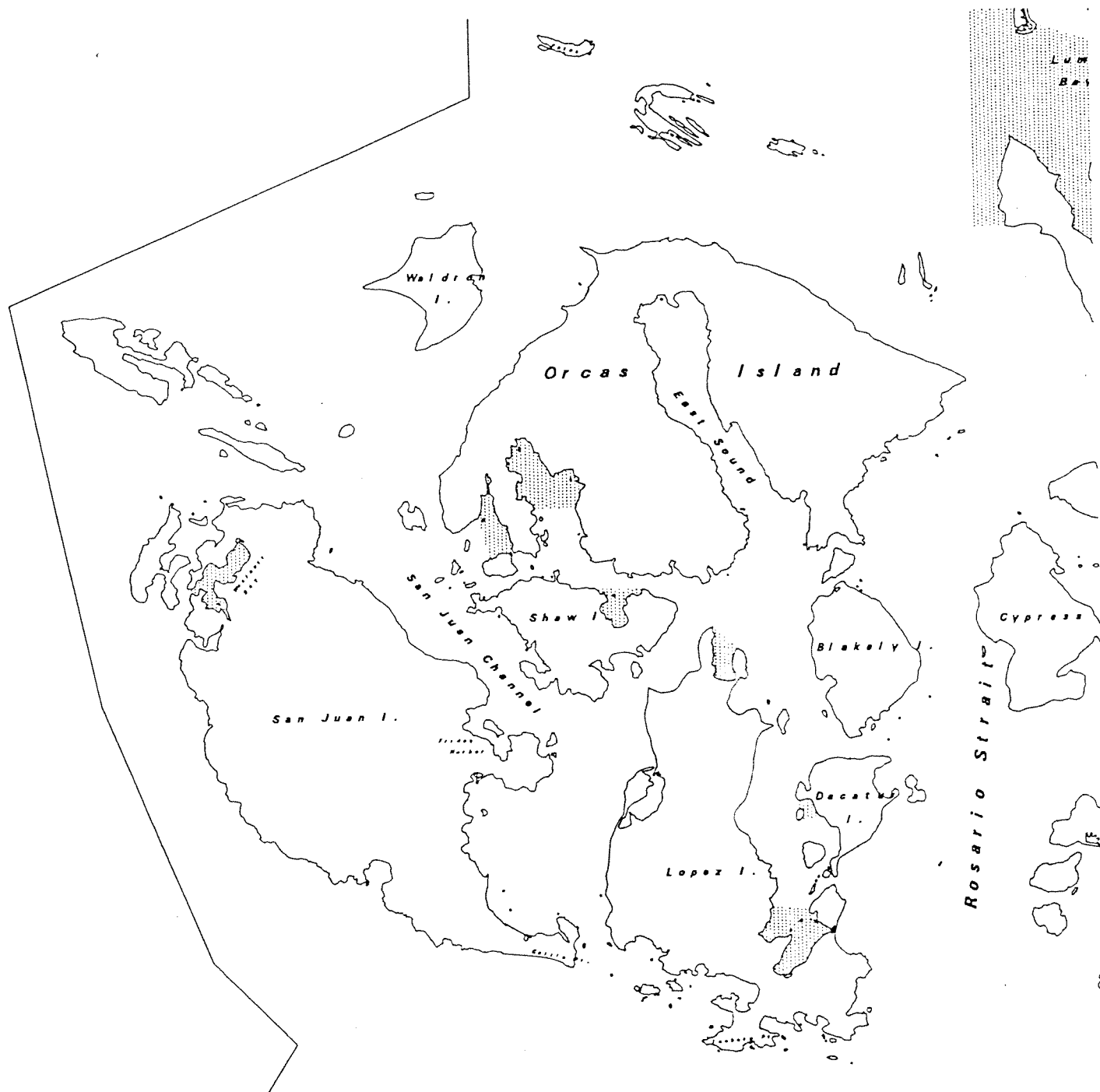
Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit

References:

Emmett, R.L., S.L. Stone, S.A. Hinton, and M.E. Monaco. 1991. Distribution and abundance of fishes and invertebrates in west coast estuaries; Volume II: species life history summaries. ELMR Rep. No. 8. NOAA/NOS Strategic Environmental Assessments Division, Rockville, MD, 329 p.

Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

San Juan Islands Baitfish Resources



Sand Lance Larvae



USGS Shoreline



Meters



Source: Washington Department of Fisheries
 This map does not offer complete information on fish and shellfish resource distribution.
 Comprehensive inventories have not been completed in all areas.

Draft - June 7, 1993

**San Juan Islands Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Cancer Crab

Resource Information Mapped: Dungeness (*Cancer magister*) and red rock (*C. productus*) crab distribution. Map depicts primarily adults but does cover some juvenile areas. Important juvenile habitat will correlate with the herring spawning (eelgrass) and oyster areas (see appropriate maps).

Resource Use: Human - large commercial and recreational harvest. Non-human - all life history phases are utilized as food by numerous fish species (eg. Pacific herring, lingcod, rockfish, coho and chinook salmon, halibut, English sole and cabezon), octopus, sea otters, harbor seals, sea lions, and gulls.

General Location or Habitat Association of Resource: Cancer crab are found in Lopez Sound, Shoal Bay, Blind Bay, Indian Cove, Buck Bay, East Sound, West Sound, Deer Harbor, False Bay, Westcott Bay, Garrison Bay, Roche Harbor, Reid harbor, Cowlitz Bay, and around Sucia Island. Adults are found from the intertidal to -90 m MLLW and prefer sandy substrates. Juveniles are found intertidally and typically associated with eelgrass, ulva, bivalve shells, or some form of cover, from +3 to -15 m MLLW. Larvae and megalopae are planktonic. Megalopae are typically found in nearshore waters where they settle to the bottom and metamorphose into juveniles during summer. Females carry incubating eggs beginning in the fall and hatching occurs between February and April.

Seasonal Sensitivity: Larvae/megalopae - planktonic - March through July. Juveniles - epibenthic intertidal - year-round.

Recommended Protection Strategy: Protect nearshore juvenile habitat, particularly eelgrass beds. Utilize protective booming where possible and aggressive open water collection techniques elsewhere.

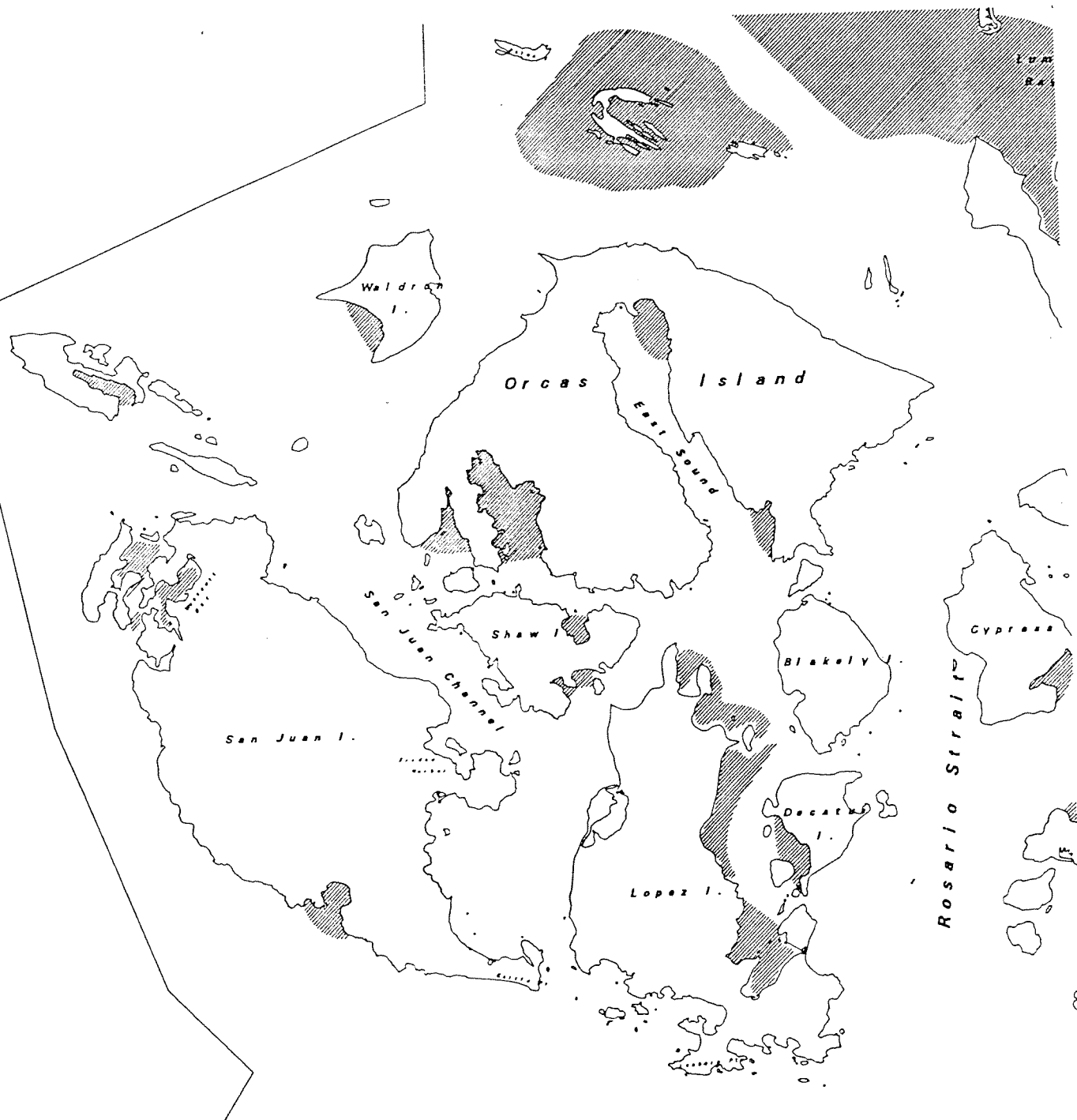
Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit

References:

- Emmett, R.L., S.L. Stone, S.A. Hinton, and M.E. Monaco. 1991. Distribution and abundance of fishes and invertebrates in west coast estuaries; Volume II: species life history summaries. ELMR Rep. No. 8. NOAA/NOS Strategic Environmental Assessments Division, Rockville, MD, 329 p.
- Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

San Juan Islands Shellfish Resources

Source: Washington Department of Fisheries
This map does not offer complete information on fish and shellfish resource distribution.
Comprehensive inventories have not been completed in all areas.



Dungeness Crab



USGS Shoreline



Meters



Draft - June 7, 1993

**San Juan Islands Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Intertidal and subtidal hardshell clams, and intertidal softshell clams.

Resource Information Mapped: Hardshell intertidal include the native littleneck (*Protothaca staminea*), the Manila littleneck (*Tapes philippinarum*), butter clams (*Saxidomus giganteus*), piddock clams (*Zirfaea pilsbryi*), and horse clams (*Tresus capax* and *T. nuttallii*), and cockles (*Clinocardium nuttali*). Subtidal includes butter clams, piddock clams and horse clams. Softshell intertidal includes only the eastern softshell clam (*Mya arenaria*).

Resource Use: Human; commercial and recreational harvest. Non human; as a group clams are feed upon by a wide variety of organisms including snails, sea stars, Dungeness and rock crabs, several species of commercially and recreationally import fish, sea otters, raccoons, scoters and other birds.

General Location or Habitat Association of Resource: Clams are found throughout the region. Concentrations of intertidal hardshell clams are located in Lopez Sound (Spencer Spit), East Sound, Westcott Bay, and Reid Harbor. Clams are found from approximately +2 m MLLW in the intertidal zone to subtidal depths of -21 m MLLW.

Seasonal Sensitivity: Due to their sessile lifestyle in the intertidal zone clams are at high risk of exposure throughout the year. Sensitivity would be elevated during the spawning and larval period which can extend from April through October.

Recommended Protection Strategy: Utilize protective booming where possible and aggressive open water collection techniques elsewhere. Where oil cannot be excluded from the beach use clean up techniques which do not force oil into beach substratum.

Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit

References:

Emmett, R.L., S.L. Stone, S.A. Hinton, and M.E. Monaco. 1991. Distribution and abundance of fishes and invertebrates in west coast estuaries; Volume II: species life history summaries. ELMR Rep. No. 8. NOAA/NOS Strategic Environmental Assessments Division, Rockville, MD, 329 p.

Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

San Juan Islands Shellfish Resources

Source: Washington Department of Fisheries
 This map does not offer complete information on fish and shellfish resource distribution.
 Comprehensive inventories have not been completed in all areas.



Draft - June 7, 1993

**San Juan Islands Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Sea Urchin

Resource Information Mapped: Commercial quantities of adult sea urchins, primarily the red sea urchin (*Strongylocentrotus franciscanus*).

Resource Use: Human - commercial fishery. Non-human - dominant organism in rocky nearshore communities, responsible for shaping the character of the habitat through their grazing activities. Important prey item for wolf eels and sea otters.

General Location or Habitat Association of Resource: Sea urchins populate the kelp beds throughout the region. Urchins are found from the lower intertidal to depths of 125 m but the highest densities are found at depths less than 30 m. Juveniles are found in adult habitat and require the adults presence to survive.

Seasonal Sensitivity: Spawning occurs during the spring followed by a planktonic larval phase that lasts from 60 to 130 days. Adults are susceptible to oil exposure via ingestion of contaminated marine algae, particularly kelp. Highest risk of this type of exposure is from April to November.

Recommended Protection Strategy: Prevent oil from contaminating nearshore kelp beds. Utilize beach clean up techniques that do not transport oil into shallow subtidal area.

Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit

References:

Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

San Juan Islands Shellfish Resources



Source: Washington Department of Fisheries

This map does not offer complete information on fish and shellfish resource distribution. Comprehensive inventories have not been completed in all areas.

Draft - June 7, 1993

**San Juan Islands Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Pandalid Shrimp

Resource Information Mapped: Harvest areas for four species of shrimp including; pink (*Pandalus jordani* and *P. borealis*), coonstripe (*P. danae*), and spot prawn (*P. platyceros*).

Resource Use: Human - commercial and recreational fisheries. Non-human - food organism for many fish species including rockfish, cabezon, and perch.

General Location or Habitat Association of Resource: Most harvest occurs in waters 100 to 220 m deep, however, the coonstripe and spot prawn are found as shallow as the lower intertidal zone. Commercially harvestable concentrations of pandalid shrimp are found in San Juan Channel, Harney Channel, and Lopez Sound.

Seasonal Sensitivity: Planktonic larval phase from February through July.

Recommended Protection Strategy: Utilize beach clean up techniques that do not transport oil into shallow subtidal area.

Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit

References:

Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

Hueckel, G.J. 1980. Foraging on an artificial reef by three Puget Sound fish species. Wa. Dept. Fish. Tech. Rpt. 53. 110 p.

San Juan Islands Shellfish Resources



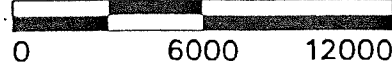
Pandalid Shrimp



USGS Shoreline



Meters



Source: Washington Department of Fisheries

This map does not offer complete information on fish and shellfish resource distribution. Comprehensive inventories have not been completed in all areas.

Draft - June 7, 1993

**San Juan Islands Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Northern Abalone (*Haliotis kamtschatkana*)

Resource Information Mapped: Documented areas of abalone presence.

Resource Use: Human - recreational fishery only. Non-human - important prey item for sea otters, octopus, and cabezon.

General Location or Habitat Association of Resource: Abalone are found along exposed or semi-exposed bedrock or boulder shorelines from the intertidal zone to depths of 20 m. Within this region they are found along the outer shorelines of Lopez, San Juan, Stuart, Waldron, Sucia, and Patos Islands.

Seasonal Sensitivity: Adult abalone congregate in the shallow subtidal zone to spawn from April through June. Abalone broadcast eggs and sperm into the water column and fertilized eggs sink to the bottom and hatch within days. Larvae spend 5 to 6 days as free swimmers in the water column. Adults are susceptible to oil exposure via ingestion of contaminated marine algae, particularly kelp. Highest risk of this type of exposure is from April to November.

Recommended Protection Strategy: Prevent oil from contaminating nearshore kelp beds. Utilize beach clean up techniques that do not transport oil into shallow subtidal area.

Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit

References:

Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

San Juan Islands Shellfish Resources



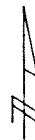
Abalone



USGS Shoreline



Meters



Source: Washington Department of Fisheries
This map does not offer complete information on fish and shellfish resource distribution.
Comprehensive inventories have not been completed in all areas.

Draft - June 7, 1993

**San Juan Islands Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Geoduck Clams (*Panope abrupta*)

Resource Information Mapped: Geoduck clam distribution (commercial quantities).

Resource Use: Human; Geoducks support a large commercial and recreational fisheries. Non human; Geoducks are fed upon by snails, pandalid shrimp, rock crab, English sole, sand sole, rock sole, starry flounder, starfish, and sea otters.

General Location or Habitat Association of Resource: Geoducks are found northeast of Humphrey Head (Lopez Is.) and north of Rock Point (Lopez Is.). They inhabit depths from +1 to -110 m MLLW. Preferred substrate is stable mud and sand.

Seasonal Sensitivity: Sensitivity would be highest during the spawning and larval period from April through August (peak May - July).

Recommended Protection Strategy: Utilize beach clean up techniques which do not transport oil into the subtidal zone.

Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit

References:

Emmett, R.L., S.L. Stone, S.A. Hinton, and M.E. Monaco. 1991. Distribution and abundance of fishes and invertebrates in west coast estuaries; Volume II: species life history summaries. ELMR Rep. No. 8. NOAA/NOS Strategic Environmental Assessments Division, Rockville, MD, 329 p.

Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

San Juan Islands Shellfish Resources

Source: Washington Department of Fisheries
This map does not offer complete information on fish and shellfish resource distribution.
Comprehensive inventories have not been completed in all areas.



Draft - June 7, 1993

**San Juan Islands Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Octopus (*Octopus dofleini*)

Resource Information Mapped: Documented octopus habitat.

Resource Use: Harvested in commercial, recreational, and subsistence fisheries.

General Location or Habitat Association of Resource: Octopus live in caves or dens from the lower intertidal to the subtidal zones.

Seasonal Sensitivity: The portion of the population inhabiting the lower intertidal and shallow subtidal zone would be subject to exposure during extreme low tides throughout the year. Octopus are also susceptible to exposure via contaminated prey, particularly clams and crab.

Recommended Protection Strategy: Utilize beach clean up techniques that do not transport oil into shallow subtidal area.

Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit

References:

Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

San Juan Islands Shellfish Resources

Source: Washington Department of Fisheries
 This map does not offer complete information on fish and shellfish resource distribution.
 Comprehensive inventories have not been completed in all areas.



Draft - June 7, 1993

**San Juan Islands Geographic Response Plan Workshop
Data Recording Sheet**

Resource: Pacific Oyster (*Crassostrea gigas*)

Resource Information Mapped: Oyster beds, primarily cultured.

Resource Use: Human - recreational and commercial harvest.
Non-human - Oyster beds provide important habitat for juvenile dungeness crab. Juvenile and adult oysters are preyed upon by dungeness and red rock crab, several starfish species, and surf and white-winged scoters.

General Location or Habitat Association of Resource: Pacific oysters are found in the lower intertidal and shallow subtidal zones in Westcott Bay.

Seasonal Sensitivity: Due to their sessile lifestyle in the intertidal zone oysters are at high risk of exposure throughout the year. Relative to their habitat function for juvenile dungeness crab the most sensitive period would be June through December.

Recommended Protection Strategy: Utilize protective booming where possible and aggressive open water collection techniques elsewhere.

Information Recorder: WDF - Oil Spill Response and Damage Prevention Unit

References:

- Emmett, R.L., S.L. Stone, S.A. Hinton, and M.E. Monaco. 1991. Distribution and abundance of fishes and invertebrates in west coast estuaries; Volume II: species life history summaries. ELMR Rep. No. 8. NOAA/NOS Strategic Environmental Assessments Division, Rockville, MD, 329 p.
- Washington Department of Fisheries. 1992. Salmon, marine fish and shellfish resources and associated fisheries in Washington's coastal and inland marine waters. Wa. Dept. Fish. Tech. Rpt. 79. 70 p.

San Juan Islands Shellfish Resources

Source: Washington Department of Fisheries
This map does not offer complete information on fish and shellfish resource distribution.
Comprehensive inventories have not been completed in all areas.



Puget Sound Fish and Shellfish Habitat Association Table - Key

Life Stages -
eggs
larvae
juveniles
spawners/spawning
parturition (birth)
adults

Timing -
--- common
+++ abundant
*** highly abundant

6-94 Salinity Range -
tidal fresh 0.0 - 0.5 ppt
mixing 0.5 - 25.0 ppt
seawater >25.0 ppt

Habitats -
intertidal 0-3 m
subtidal 3-10m

Data Source -
Monaco, M.E. et al. 1990. Distribution and abundance of fishes and invertebrates in west coast estuaries. Vol. I: Data summaries. ELMR Rept. 4. Strategic Assessment Branch, NOS/NOAA, Rockville, MD
Emmett, R.L. et al. 1991. Distribution and abundance of fishes and invertebrates in west coast estuaries. Vol. II: Species Life History Summaries. ELMR Rept. 8. Strategic Assessment Branch, NOS/NOAA, Rockville, MD

December 6, 1994

SAN JUAN ISLANDS/ NORTH PUGGET SOUND GRP

DRAFT

Fish Habitat Association in Puget Sound

SAN JUAN ISLANDS/ NORTH PUGET SOUND GRP

Species	Timing	Salinity Range			Substrate Preference										Habitats					
															Type			Area		
		Tidal	Fresh	Seawater	Mud/Silt/Clay	Sand/Granule	Pebble	Cobble	Boulder/Riprap	Rocky Outcrop	Estuarine Veg	Marine Veg	None	Benthic Intertidal	Benthic Subtidal	Pelagic	Mainstem Channel	Subsidiary Channel	Channel Edge	Intertidal Flat
Spring Chinook Salmon		J F M A M J J A S O N D																		
	juveniles	-----+++++	X	X	X		X	X	X							X	X	X	X	X
	adults	--+++++	X	X	X		X	X	X							X	X	X	X	X
Fall Chinook Salmon		J F M A M J J A S O N D																		
	juveniles	-----+++++	X	X	X		X	X	X							X	X	X	X	X
	adults	-----+++++	X	X	X		X	X	X							X	X	X	X	X
Sockeye Salmon		J F M A M J J A S O N D																		
	juveniles	-----++	X	X	X								X			X	X	X	X	X
	adults	--++++	X	X	X		X	X								X	X	X	X	X
Coho Salmon		J F M A M J J A S O N D																		
	juveniles	-----++	X	X	X		X	X								X	X	X	X	X
	adults	----	X	X	X		X	X								X	X	X	X	X
Chum Salmon		J F M A M J J A S O N D																		
	juveniles	-----++	X	X	X								X			X	X	X	X	X
	adults	++-----	X	X	X		X	X								X	X	X	X	X

December 6, 1994

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Fish Habitat Association in Puget Sound (cont.)

SAN JUAN ISLANDS/ NORTH PUGET SOUND GRP

Species	Timing	Salinity Range			Substrate Preference									Habitats						
														Type			Area			
		Tidal Fresh	Mixing	Seawater	Mud/Silt/Clay	Sand/Granule	Pebble	Cobble	Boulder/Riprap	Rocky Outcrop	Estuarine Veg	Marine Veg	None	Benthic Intertidal	Benthic Subtidal	Pelagic	Mainstem Channel	Subsidiary Channel	Channel Edge	Intertidal Flat
Pink Salmon	J F M A M J J A S O N D																			
	juveniles	++++*****-----	X	X	X								X			X	X	X	X	X
	adults	--+++++---	X	X	X		X	X								X	X	X	X	X
Surf Smelt	J F M A M J J A S O N D																			
	eggs	*****		X	X		X							X						
	larvae	+++++++		X	X		X							X						
	juveniles	+++++++		X	X								X			X	X	X	X	
	spawners	*****		X	X		X							X						
	adults	+++++++		X	X								X			X	X	X	X	
Herring	J F M A M J J A S O N D																			
	eggs	*****		X	X							X	X		X	X			X	
	larvae	*****+		X	X									X		X	X	X	X	
	juveniles	+++++++		X	X								X			X	X	X	X	
	spawners	*****		X	X							X	X		X	X			X	
	adults	**+++++++*		X	X								X			X	X	X	X	

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Fish Habitat Association in Puget Sound (cont.)

Species	Timing	Salinity Range			Substrate Preference										Habitats					
															Type			Area		
		Tidal Fresh	Mixing	Seawater	Mud / Silt / Clay	Sand / Granule	Pebble	Cobble	Boulder / Riprap	Rocky Outcrop	Estuarine Veg	Marine Veg	None	Benthic Intertidal	Benthic Subtidal	Pelagic	Mainstem Channel	Subsidiary Channel	Channel Edge	Intertidal Flat
Longfin Smelt		J F M A M J J A S O N D																		
	eggs					X											X			
	larvae	----- ---	X	X	X	X										X	X	X	X	
	juveniles	-----		X	X								X			X	X	X	X	
	adults	----- ---	X	X	X								X			X	X	X	X	
Anchovy		J F M A M J J A S O N D																		
	eggs	--		X	X								X			X				
	larvae	----		X	X								X			X	X	X	X	
	juveniles	-----		X	X								X			X	X	X	X	
	spawners	----		X	X								X			X				
	adults	-----		X	X								X			X	X	X	X	
Sand Lance		J F M A M J J A S O N D																		
	eggs	++++++ +++		X	X		X							X	X	X	X			
	larvae	+++++++		X	X		X									X	X			
	juveniles	+++++++		X	X		X							X	X	X	X			
	spawners	++++++ +++		X	X		X							X	X	X	X			
	adults	-----		X	X		X							X	X	X	X			

December 6, 1994

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Fish Habitat Association in Puget Sound (cont.)

Species	Timing	Salinity Range			Substrate Preference										Habitats					
															Type			Area		
		Tidal	Fresh	Seawater	Mud/Silt/Clay	Sand/Granule	Pebble	Cobble	Boulder/Riprap	Rocky Outcrop	Estuarine Veg	Marine Veg	None	Benthic Intertidal	Benthic Subtidal	Pelagic	Mainstem Channel	Subsidiary Channel	Channel Edge	Intertidal Flat
English Sole		J	F	M	A	M	J	J	A	S	O	N	D							
	eggs	*****			X								X							
	larvae	+++++++		X	X	X							X			X	X	X		
	juveniles	*****		X	X	X	X				X	X		X	X		X	X	X	X
	spawning	+++++++		X	X	X	X								X					
	adults	+++++++		X	X	X	X				X	X			X		X			
Starry Flounder		J	F	M	A	M	J	J	A	S	O	N	D							
	eggs	-----			X								X			X				
	larvae	-----		X	X								X			X	X			
	juveniles	-----	X	X	X	X	X				X	X		X	X		X	X	X	X
	spawning	-----			X		X													
	adults	+++++++		X	X	X	X				X	X		X	X		X	X		
Ling Cod		J	F	M	A	M	J	J	A	S	O	N	D							
	eggs	-----			X				X	X				X	X					
	larvae	-----		X	X								X			X				
	juveniles	-----		X	X	X	X			X	X	X	X	X	X		X	X	X	
	spawning	-----			X				X	X				X	X					
	adults	-----			X				X	X		X		X	X					

Fish Habitat Association in Puget Sound (cont.)

Species	Timing	Salinity Range			Substrate Preference										Habitats							
															Type			Area				
		Tidal Fresh	Mixing	Seawater	Mud / Silt / Clay	Sand / Granule	Pebble	Cobble	Boulder / Riprap	Rocky Outcrop	Estuarine Veg	Marine Veg	None	Benthic Intertidal	Benthic Subtidal	Pelagic	Mainstem Channel	Subsidiary Channel	Channel Edge	Intertidal Flat		
Shiner Perch		J F M A M J J A S O N D																				
	juveniles	+++++*****	X	X	X	X	X						X		X		X	X	X	X	X	X
	parturition	---+-----		X		X	X						X		X			X	X	X	X	X
	adults	*****		X	X	X	X						X		X		X	X	X	X	X	X
Perch		J F M A M J J A S O N D																				
	juveniles	+++++*****	X	X	X	X	X						X				X	X	X	X	X	X
	parturition	---+-----		X	X	X	X						X					X	X	X	X	X
	adults	---+-----		X	X	X	X						X				X	X	X	X	X	X
Pacific Tomcod		J F M A M J J A S O N D																				
	larvae	-----		X	X									X				X	X	X		
	juveniles	-----+*****		X	X	X	X						X	X			X		X	X	X	
	adults	*****		X	X	X	X									X		X	X	X		

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Shellfish Habitat Association in Puget Sound (cont.)

Species	Timing	Salinity Range			Substrate Preference									Habitats						
														Type			Area			
		Tidal	Mixing	Seawater	Mud/Silt/Clay	Sand/Granule	Pebble	Cobble	Boulder/Rippap	Rocky Outcrop	Estuarine Veg	Marine Veg	None	Benthic Intertidal	Benthic Subtidal	Pelagic	Mainstem Channel	Subsidiary Channel	Channel Edge	Intertidal Flat
Pacific Gaper Clam	J F M A M J J A S O N D																			
eggs	+++++		X	X									X			X	X	X	X	X
larvae	+++++		X	X									X			X	X	X	X	X
juvenile	+++++		X	X	X	X								X	X		X	X	X	X
spawning	+++++		X	X										X	X		X	X	X	X
adults	+++++		X	X	X	X								X	X		X	X	X	X
Horse Clam	J F M A M J J A S O N D																			
eggs	-----												X			X	X	X	X	X
larvae	-----		X	X									X			X	X	X	X	X
juvenile	+++++		X	X	X	X								X	X		X	X	X	X
spawning	-----													X	X		X	X	X	X
adults	+++++		X	X	X	X								X	X		X	X	X	X
Little Neck Clam	J F M A M J J A S O N D																			
eggs	*****												X			X	X	X	X	X
larvae	*****												X			X	X	X	X	X
juveniles	*****		X	X	X	X	X	X						X	X		X	X	X	X
spawning	*****												X	X	X		X	X	X	X
adults	*****		X	X	X	X	X	X						X	X		X	X	X	X

Shellfish Habitat Association in Puget Sound (cont.)

Species	Timing	Salinity Range			Substrate Preference									Habitats						
														Type			Area			
		Tidal Fresh	Mixing	Seawater	Mud/Silt/Clay	Sand/Granule	Pebble	Cobble	Boulder/Rippap	Rocky Outcrop	Estuarine Veg	Marine Veg	None	Benthic Intertidal	Benthic Subtidal	Pelagic	Mainstem Channel	Subsidiary Channel	Channel Edge	Intertidal Flat
Manila Clam	J F M A M J J A S O N D																			
	eggs	*****											X			X	X	X	X	X
	larvae	*****		X	X								X			X	X	X	X	X
	juveniles	*****		X	X	X	X	X	X					X	X				X	X
	spawning	*****											X	X	X				X	X
	adults	*****		X	X	X	X	X	X					X	X				X	X
Pacific Oyster	J F M A M J J A S O N D												X			X	X	X	X	X
	eggs												X			X	X	X	X	X
	larvae												X			X	X	X	X	X
	juveniles	*****		X	X	X	X	X	X	X				X	X		X	X	X	X
	adults	*****		X	X	X	X	X	X	X				X	X		X	X	X	X
Geoduck Clam	J F M A M J J A S O N D																			
	eggs	++++++		X	X								X			X	X	X	X	X
	larvae	++++++		X	X								X			X	X	X	X	X
	juveniles	++++++		X	X	X	X							X	X		X	X	X	X
	spawning	++++++		X	X								X	X	X		X	X	X	X
	adults	++++++		X	X	X	X							X	X		X	X	X	X

Shellfish Habitat Association in Puget Sound

Species	Timing	Salinity Range			Substrate Preference										Habitats						
															Type			Area			
		Tidal	Fresh	Mixing	Sea water	Mud / Silt / Clay	Sand / Granule	Pebble	Cobble	Boulder / Riprap	Rocky Outcrop	Estuarine Veg	Marine Veg	None	Benthic Intertidal	Benthic Subtidal	Pelagic	Mainstem Channel	Subsidiary Channel	Channel Edge	Intertidal Flat
Dungeness Crab	J F M A M J J A S O N D																				
eggs	-----																				
larvae	-----			X	X									X			X	X	X		
juveniles	-----+*****+			X	X	X	X	X				X			X	X		X	X	X	X
mating	-----														X	X					
adults	+++++			X	X	X	X	X							X	X		X	X	X	
Blue Mussel	J F M A M J J A S O N D																				
eggs	++++*****+			X	X									X			X	X	X	X	X
larvae	++++*****+			X	X									X			X	X	X	X	X
juveniles	*****			X	X				X	X	X				X	X		X	X	X	X
spawning	++++*****+			X	X									X	X	X		X	X	X	X
adults	*****			X	X				X	X	X				X	X		X	X	X	X
Softshell Clam	J F M A M J J A S O N D																				
eggs	+++++			X	X									X			X	X	X	X	X
larvae	+++++			X	X									X			X	X	X	X	X
juvenile	+++++			X	X	X	X								X	X		X	X	X	X
spawning	+++++			X	X									X	X	X		X	X	X	X
adults	+++++			X	X	X	X								X	X		X	X	X	X

7. Logistical Information

The following is not a complete list of logistical resources - for more information please refer to the Area Contingency Plan, Summary of Area Resources Chapter 6. The subject headings which have an asterisk (*) are being developed; please consult local DEM officials (phone numbers listed on pages 6-53 to 6-55 of the ACP) for specific information.

To submit data for this section, please use Comments/ Corrections/ Suggestions (Appendix C).

7.1. Logistical Information

Subject	Name	Characteristics	Contact	Phone #
Command Posts *				
Communications				
See ACP Pages 6-41 to 6-42				
Equipment Cache Locations				
See ACP Pages 6-2 to 6-45				
Inventory of Local Support Equipment *				
Helicopter Support/Air Support	Bellingham International Airport	Whatcom County	4255 Mitchell Way Bellingham, WA 98226	(206) 676-2500 ext. 332
	Friday Harbor Airport	San Juan County	800 Franklin Drive Friday Harbor, WA 98250	(206) 378-4724
	Port of Anacortes Airport	Skagit County	Anacortes, WA 98221	(206) 293-3134
	Skagit Regional Airport	Skagit County	Bay View Burlington, WA 98233	(206) 757-0011
Access Points *				
Property Access Information and Contacts *				
Staging Areas *				
Recreational Activities which could interfere *				
Tribal Resources	Lummi Indian Business Council	Whatcom County	2616 Kwina Road Bellingham, WA 98226	(206) 734-8180
	Lummi Nation/ Fisheries Department	Whatcom County	2616 Kwina Road Bellingham, WA 98226	(206) 647-6230

SAN JUAN ISLANDS/ NORTH PUGET SOUND GRP

Subject	Name	Characteristics	Contact	Phone #
Tribal Resources (continued)	Nooksack Indian Tribal Council	Whatcom County	Deming, WA 98244	(206) 676-2002
	Skagit Systems Co-op	Skagit County	LaConner, WA 98257	(206) 598-3311
	Swinomish Indian Tribal Community	Skagit County	LaConner, WA 98257	(206) 466-3163
	Upper Skagit Tribal Council	Skagit County	2284 Community Plaza/ Sedro Woolley, WA 98284	(206) 856-5501
Key Local Elected Officials*				
Fire Department				
See ACP Pages 6-60 to 6-66				
Local Support Personnel	Anacortes City Hall	Skagit County	Anacortes, WA 98221	(206) 293-1900
	Bellingham City Hall	Whatcom County	Bellingham, WA 98225	(206) 8676-6979
	Board of Commissioners	San Juan County	Friday Harbor, WA 98250	(206) 378-2898
	Anacortes City Police	Skagit County	Anacortes, WA 98221	(206) 293-4684
	Bellingham City Police	Whatcom County	Bellingham, WA 98225	(206) 676-6911
	Ferndale Police Department	Whatcom County	Ferndale, WA 98348	(206) 384-3390
	San Juan County DEM	San Juan County	San Juan County Sheriff's Dept. / Friday Harbor	(206) 378-4183
	Skagit County DEM	Skagit County	700 S Second/ County Admin Bldg, , Room 203 / Mt. Vernon, WA 98273	(206) 336-3146
	Whatcom County DEM	Whatcom County	311 Grand Ave. / County Courthouse Bellingham, WA 98225 1720 Warren / Bremerton	(206) 676-6680/ or -6681
	San Juan County Sheriff	San Juan County	Friday Harbor, WA 98250	(206) 378-4151
	Skagit County Sheriff	Skagit County	Mt. Vernon, WA 98273	(206) 336-9450
	Whatcom County Sheriff	Whatcom County	311 Grand Ave. Bellingham, WA 98225	(206) 676-6811
Volunteers *				
Wildlife Rehab Facilities	St. Edward State Park	King County	14445 Juanita Dr. NE/ Bothell	Joe Pillers @ (206) 823-2992 or Don Simmons @ (206) 931-3907
Marinas/Port Docks	Swinomish Channel Boat Launch	Skagit County	Under the Duane Berentson Bridge on Hiway 20	

Subject	Name	Characteristics	Contact	Phone #
Marinas/Port Docks (continued)	Blake's Resort Ramp	Skagit County	Blake's Resort off of Fir Island Road	
	Port of Skagit County Sling	Skagit County	North end of LaConner	
	Cape Sante Marina	Skagit County	Downtown Anacortes	
	Washington Park Ramp	Skagit County	Next to Anacortes Ferry Terminal	
	Skyline Marina	Skagit County	Next to Anacortes Ferry Terminal	
	City of Bellingham Boat Launch	Whatcom County	End of Harris St., next to Alaska Ferry Terminal	
	Glen Street Boat Ramp	Whatcom County	On Glen St. in Bellingham	
	Shipyard Cove Marina	San Juan County	On Harrison St. in Friday Harbor	
	Roche Resort Resort Ramp	San Juan County	Roche Harbor Resort on San Juan Island	
	Snug Harbor Ramp	San Juan County	Snug Harbor on west side of San Juan Island	
	San Juan County Park	San Juan County	On Mitchell Bay, west side of San Juan Island	
	Rosario Resort Ramp	San Juan County	Rosario Resort on Orcas Island	
	Islands Marina	San Juan County	West side of Lopez Island	
	Odlin County Park Ramp	San Juan County	Odlin County Park	
Housing/Feeding/Response Community Support *				
Interim Storage/Permits *				
Fishing Fleets & Affiliated Organizations *				
Boat Cleaning Capability	Airo Services	Pierce County	4110 East 11th St./ Tacoma	(206)383-4916 24 hr. number
	Foss Environmental	King County	660 West Ewing St./ Seattle	1-800-337-7455 24 hr. number
Safe Havens *				

APPENDICES

Appendix A: Summary of Protection Techniques

Protection Techniques	Description	Primary Logistical Requirements	Limitations
ONSHORE			
Beach Berms	A berm is constructed along the top of the mid-inter tidal zone from sediments excavated along the downgradient side. The berm should be covered with plastic or geo-textile sheeting to minimize wave erosion.	<ul style="list-style-type: none"> • Bulldozer/Motor grader -1 • Personnel - equipment operator & 1 worker • Misc. - plastic or geotextile sheeting 	<ul style="list-style-type: none"> • High wave energy • Large tidal range • Strong along shore currents
Geotextiles	A roll of geotextile, plastic sheeting, or other impermeable material is spread along the bottom of the supra-tidal zone & fastened to the underlying logs or stakes placed in the ground.	<ul style="list-style-type: none"> • Geotextile - 3 m wide rolls • Personnel - 5 • Misc. - stakes or tie-down cord 	<ul style="list-style-type: none"> • Low sloped shoreline • High spring tides • Large storms
Sorbent Barriers	A barrier is constructed by installing two parallel lines of stakes across a channel, fastening wire mesh to the stakes & filling the space between with loose sorbents.	Per 30 meters of barrier <ul style="list-style-type: none"> • Wire mesh - 70 m x 2 m • Stakes - 20 • Sorbents - 30 m² • Personnel - 2 • Misc. - fasteners, support lines, additional stakes, etc. 	<ul style="list-style-type: none"> • Waves > 25 cm • Currents > 0.5 m/s • Tidal range > 2 m
Inlet Dams	A dam is constructed across the channel using local soil or beach sediments to exclude oil from entering channel.	<ul style="list-style-type: none"> • Loader - 1 • Personnel - equipment operator & 1 worker or several workers w/shovels 	<ul style="list-style-type: none"> • Waves > 25 cm • Tidal range exceeding dam height • Freshwater outflow

NEARSHORE			
Containment Booming	Boom is deployed in a "U" shape in front of the oncoming slick. The ends of the booms are anchored by work boats or drogues. The oil is contained within the "U" & prevented from reaching the shore.	For 150 meters Slick: <ul style="list-style-type: none"> • Boom - 280 m • Boats - 2 • Personnel - boat crews & 4 boom tenders • Misc. - tow lines, drogues, connectors, etc. 	<ul style="list-style-type: none"> • High winds • Swells > 2 m • Breaking waves > 50 cm • Currents > 1.0 m/s
Exclusion Booming	Boom is deployed across or around sensitive areas & anchored in place. Approaching oil is deflected or contained by boom.	Per 300 meters of Boom <ul style="list-style-type: none"> • Boats - 1 • Personnel - boat crew & 3 boom tenders • Misc.- 6 anchors, anchor line, buoys, etc. 	<ul style="list-style-type: none"> • Currents > 0.5 m/s • Breaking waves > 50 cm • Water depth > 20 m
Deflection Booming	Boom is deployed from the shoreline away from the approaching slick & anchored or held in place with a work boat. Oil is deflected away from shoreline.	Single Boom, 0.75 m/s knot current <ul style="list-style-type: none"> • Boom - 60 m • Boats - 1 • Personnel - boat crew + 3 • Misc. - 3 anchors, line, buoys, recovery unit 	<ul style="list-style-type: none"> • Currents > 1.0 m/s • Breaking waves > 50 cm
Diversion Booming	Boom is deployed from the shoreline at an angle towards the approaching slick & anchored or held in place with a work boat. Oil is diverted towards the shoreline for recovery.	Single Boom, 0.75 m/s knot current <ul style="list-style-type: none"> • Boom - 60 m • boats - 1 • Personnel - boat crew + 3 • Misc. - 3 anchors, line, buoys, recovery unit 	<ul style="list-style-type: none"> • Currents > 1.0 m/s • Breaking waves > 50 cm
Skimming	Self-propelled skimmers work back & forth along the leading edge of a windrow to recover the oil. Booms may be deployed from the front of a skimmer in a "V" configuration to increase sweep width. Portable skimmers are placed within containment booms in the area of heaviest oil concentration.	Self-propelled (None) Towed <ul style="list-style-type: none"> • Boom - 200 m • Boats - 2 • Personnel - boat crews & 4 boom tenders • Misc. - tow lines, bridles, connectors, etc. Portable <ul style="list-style-type: none"> • Hoses - 30 m discharge • Oil storage - 2000 liters 	<ul style="list-style-type: none"> • High winds • Swells > 2 m • Breaking waves > 50 cm • Currents > 1.0 m/s

Source is R. Miller of Clean Sound Cooperative.

Appendix B: Original Geographic Response Plan Contributors**Industry and Response Contractors**

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Appendix C: Geographic Response Plan Comments/Corrections/Suggestions

If you have any questions regarding this document or find any errors, please notify one of the following agencies:
or use tear out sheet (page C-3)

- Washington Department of Ecology, SPPR program, Natural Resources Unit
- USCG Marine Safety Office Puget Sound, Planning Department
- USCG Marine Safety Office Portland
- Oregon Department of Environmental Quality
- Idaho Emergency Response Commission
- Environmental Protection Agency Region 10

Phone Numbers:

Washington DOE	(360) 407-6972
USCG MSO Puget Sound	(206) 217-6213
USCG MSO Portland	(503) 240-9307
Oregon DEQ	(503) 229-5774
Idaho ERC	(208) 334-3263
EPA	(206) 553-6901

Bulletin Board System (BBS):

USCG MSO Puget Sound	(206) 217-6216
USCG MSO Portland	(503) 240-9308

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USCG MSO Puget Sound	jlehto@pacnorwest.uscg.mil
USCG MSO Portland	mwilcox@pacnorwest.uscg.mil
USEPA	sheldrake.beth@epamail.epa.gov

Address:

Commanding Officer United States Coast Guard MSO Puget Sound Planning Department 1519 Alaskan Way South Seattle, WA 98134-1192	Washington Department Of Ecology SPPR Program Natural Resources Unit P.O. Box 47600 Olympia, WA 98504-7600	Office Of The Governor Idaho Emergency Response Commission 1109 Main Statehouse Boise, ID 83720-7000
Commanding Officer United States Coast Guard Planning Department MSO Portland 6767 North Basin Ave Portland, OR 97217-3992	Oregon Department of Environmental Quality Water Quality Division 811 SW Sixth Avenue Portland, OR 97204	Environmental Protection Agency Emergency Response Branch 1200 Sixth Avenue Seattle, WA 98101

*Geographic Response Plan***Comments/Corrections/Suggestions****Directions:**

Fill in your name, address, agency, and phone number. Fill in the blanks regarding the location of information in the plan being commented on. Make comments in the space provided. Add extra sheets as necessary. Submit to: Dale Davis

Department of Ecology
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P.O. Box 47600
Olympia, WA 98504-7600
dald461@ecy.wa.gov

Name: _____	Title: _____	Agency: _____
Address: _____		
City: _____	State/Province: _____	Zip/Postal Code: _____
Phone: (____) _____	E-Mail: _____	

GRP: _____	Page Number: _____
Location on page (chapter, section, paragraph) (e.g. 2.1, paragraph 3): _____	

Comments: _____

Northwest Area Committee
c/o Washington Department of
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Spills Program
Natural Resources Unit - GRP
Corrections
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